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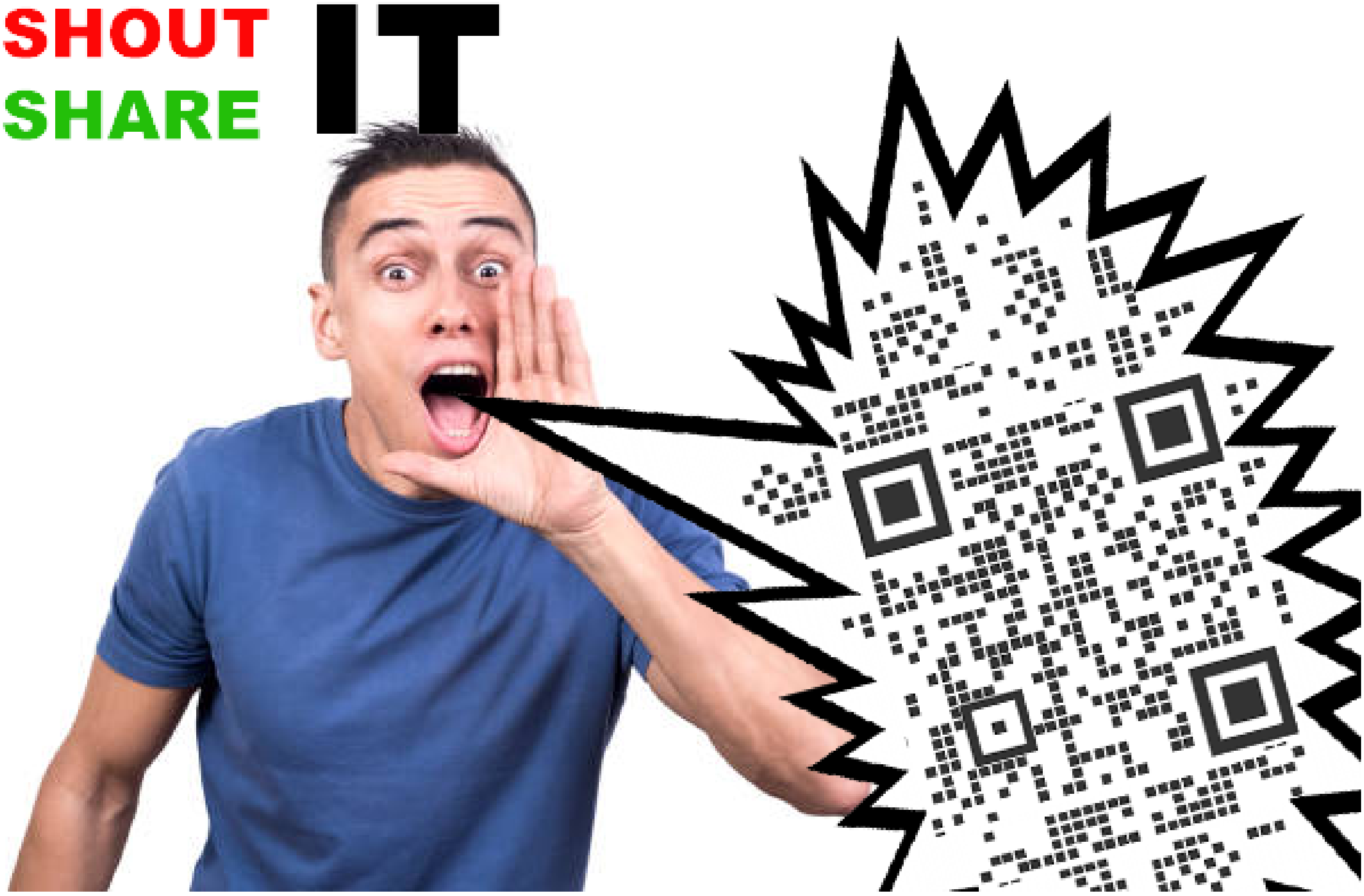

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 601 January, 1939

Meteorological Observations

FOR

JANUARY
1939

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day.	Temperature.					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind.			Precipitation.			
	Maximum		Minimum.											
	Degrees	Time.	Degrees	Time.	Mean			Prevailing Direction	Total Movement	Max miles/hr*	Began	Ended	Rain	Snow
1	33	2 A	24	8 P	28.5	57	6.8	w	136	18				
2	45	12 M	28	12 P	36.5	56	6.8	w	242	40			T	
3	28	0 A	15	8 P	21.5	75	0.0	nw	194	20				
4	26	8 P	14	8 A	20.0	89	3.8	n	153	15				
5	29	12 P	19	6 A	24.0	88	0.0	nw	72	7	11-30 P	12 P	.03	
6	39	2 P	29	0 A	34.0	97	4.5	nw	122	13	0 A	12 M	1.31	
7	43	1 P	34	1 A	38.5	81	6.5	s	110	11				
8	41	3 P	30	3 A	35.5	56	7.5	nw	223	32				
9	45	3 P	28	2 A	36.5	63	8.0	nw	103	8				
10	52	3 P	35	0 A	43.5	72	4.0	s	191	14			T	
11	46	0 A	39	8 A	42.5	60	6.4	nw	249	40				
12	33	12 M	21	12 P	27.0	57	8.7	nw	285	32				
13	28	2 P	19	7 A	23.5	53	6.5	n	125	15				
14	25	4 P	17	12 P	21.0	81	4.8	n	151	14	0 A	8 A	.01	.25
15	35	3 P	5	8 A	20.0	66	9.4	w	55	6				
16	32	3 P	11	6 A	21.5	80	6.8	w	25	3				
17	32	1 P	17	4 A	24.5	57	9.0	nw	187	22				
18	28	4 P	12	7 A	20.0	62	7.8	n	171	14				T
19	26	3 P	9	6 A	17.5	67	6.5	n	143	11				T
20	27	2 P	10	8 A	18.5	78	8.8	nw	69	7				T
21	27	3 P	9	7 A	18.0	92	6.5	s	34	6				
22	39	1 P	7	12 P	23.0	83	3.6	s	212	44	3 A	11 A	.12	1.00
23	23	3 P	0	7 A	11.5	45	9.7	n	389	32				
24	37	3 P	14	0 A	25.5	84	4.0	s	116	10				T
25	32	8 A	6	12 P	19.0	60	6.8	nw	217	32	2 A	4 A	.03	.25
26	16	4 P	0	8 A	8.0	46	9.0	n	262	25				
27	22	3 P	-4	7 A	9.0	50	8.8	n	108	13				
28	34	3 P	5	7 A	19.5	63	9.0	s	145	20				
29	43	0 A	29	2 P	36.0	73	2.3	s	179	14	3-30 P	4-30 P	.05	T
30	34	10 A	18	12 P	26.0	91	0.0	n	179	32	6 A	8 P	.53	2.25
31	24	4 P	17	8 A	20.5	84	6.7	n	232	18	1 A	12 P	.13	1.00

*Based on least time required to blow one mile.

NOTE—Beginning May [illegible] relative humidity is based on readings taken at 8 A. M., 12 NOON, and 8 P. M. Prior to that time readings were taken at 8 A. M. and 8 P. M.

F. W. WHITTEMORE, *Observer*

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MASSACHUSETTS
AMHERST, MASS.

MONTHLY SUMMARY

January 1939		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.52, 4th	30.70	31.00, 1927
Minimum	29.20, 22nd	29.20	28.55, 1913
Mean semi-daily	30.041	30.07	
Range	1.32	1.51	2.18, 1913; 0.97, 1896
Air Temperature, in degrees F.			
Highest	52, 10th	51.1	66.0, 1932
Lowest	–4, 27th	–7.1	–26.0, 1904
Mean	24.9	24.2	34.2, 1913; 13.9, 1918
Monthly range	56	58.2	
Highest mean daily	43.5, 10th		
Lowest mean daily	8.0, 26th		
Mean maximum	33.0		
Mean minimum	16.7		
Greatest daily range	32, 22nd		
Least daily range	7, 11th, 31st		
Precipitation, in inches			
Precipitation	2.21	3.61	7.15, 1898; 1.07, 1896
Snow	4.75	13.24	33,1898, 1923; 1.75, 11
Maximum precipitation in 24 hrs.	1.34, 5th, 6th		
Number of days with .01 or more	8		
Wind, in miles			
Total movement	5079	5055	7770, 1908; 2896, 1895
Greatest daily movement	389, 23rd		
Least daily movement	25, 16th		
Mean hourly velocity	6.8	6.8	
Maximum velocity	44, 22nd	32.7	47, 1938
Wind, direction			
Prevailing direction	NW	WNW	
North, days	10		
Northeast, days	0		
East, days	0		
Southeast, days	0		
South, days	7		
Southwest, days	0		
West, days	4		
Northwest, days	10		
Weather			
Mean relative humidity, percent	69.9	70.1	
Mean cloudiness, percent	57	55	78, 1932; 37, 1908
Number of clear days	17	9	16, 1932; 2, 1914
Number of fair days	10	9	18, 1890, 1926; 3, 1916
Number of cloudy days	4	13	22, 1923, 1931; 4, 1920
Number hours bright sunshine	189	137	214, 1920; 74, 1932
Percent of possible hours of bright sunshine	64.3	46.7	
Thunder and lightning	22nd		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1938.

REMARKS

The weather during January was pleasant, with less rain and snow than usual and with more sunshine than normal. The mean temperature for the month was 24.9 degrees which is .7 degrees higher than normal. The lowest was –4 degrees on the 27th. The average low temperature for January is –7.1 degrees, and the extreme was –26 degrees in 1904. The domestic heating load for the month was 1245 degree-days, the normal for January being 1265 degree-days. The total heating load for the season is 3541 degree-days, the normal being 3814 for this period. Only 4.75 inches of snow fell in January, while the normal is 13.24 inches. The total precipitation for the month was 2.21 inches compared to a normal of 3.61 inches. There were 189 hours of bright sunshine, with 17 days classified as "clear". The normal hours of sunshine for January is 137 hours. A wind velocity of 44 miles per hour occurred on the 22nd and there was thunder and lightning on that afternoon.

NOTE: The weather observatory completed 50 years of records with the December 1938 bulletin. A new set of normals has been calculated based on records from 1889 to 1938 inclusive.

Two errors were made in the December bulletin. The relative humidity on December 1 should read 52 percent making the mean monthly humidity 73.3 percent, and the maximum barometer for December was 30.67 inches on the 16th.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series | Bulletin No. 602 | February 1939

Meteorological Observations

FOR

FEBRUARY

1939

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature							Wind			Precipitation			
	Maximum		Minimum											
Day	Degrees	Time	Degrees	Time	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max. miles/hr*	Began	Ended	Rain	Snow
1	34	4 P	2	8 A	18.0	77	10.0	nw	82	11	0 A	3 A	.02	T
2	24	12 P	14	3 A	19.0	94	0.5	nw	53	9	0 A	12 P	.02	T
3	34	9 P	24	0 A	29.0	97	3.3	nw	55	15	0 A	12 P	T	
4	32	2 P	16	12 P	24.0	61	9.0	nw	282	48	0 A	4 A	.02	.50
5	31	5 P	11	8 A	21.0	65	10.1	s	83	9				
6	29	3 P	9	6 A	19.0	80	6.3	w	51	6	10 P	12 P	.16	1.50
7	34	4 P	25	12 P	29.5	89	5.8	n	105	9	0 A	1 P	.28	3.00
8	41	3 P	15	7 A	28.0	80	8.4	s	108	15				
9	40	3 P	20	12 P	30.0	48	10.3	nw	198	18				
10	32	12 P	18	8 A	25.0	95	0.0	n	129	9	7 A	12 P	.41	
11	35	8 A	17	12 P	26.0	64	7.7	nw	202	39	0 A	8 A	.10	
12	32	3 P	10	6 A	21.0	54	10.3	s	162	18				
13	50	3 P	28	12 P	39.0	46	9.8	s	162	13				
14	38	4 P	27	2 A	32.5	91	6.5	sw	50	7				
15	56	2 P	29	3 A	42.5	92	0.0	nw	144	32	7 A	9 P	.45	
16	30	0 A	4	12 P	17.0	43	10.6	nw	433	48				
17	31	11 P	0	7 A	15.5	73	3.2	s	147	20				
18	46	3 P	26	5 A	36.0	57	8.0	nw	225	25				
19	38	2 P	30	7 A	34.0	85	0.0	sw	111	8	2 P	9 P	.27	
20	62	4 P	34	5 A	48.0	83	7.5	n	120	20				
21	35	4 P	30	11 P	32.5	77	9.0	n	173	11	10 P	12 P	.03	
22	28	9 A	17	12 P	22.5	74	3.8	n	257	32	0 A	8:30 A	.17	1.00
23	28	2 P	9	7 A	18.5	49	10.8	nw	141	12				
24	39	4 P	15	1 A	27.0	68	3.3	s	204	22				
25	35	3 P	16	7 A	25.5	58	9.5	se	115	9				
26	34	8 P	30	6 A	32.0	96	0.0	nw	101	8	6:30 A	9 P	.97	
27	42	3 P	28	12 P	35.0	62	9.3	nw	144	25				
28	38	7 P	25	5 A	31.5	94	0.0	nw	60	13	12 M	9 P	.72	

*Based on least time required to blow one mile.

F. W. Whittemore, *Observer.*

MONTHLY SUMMARY

February 1939		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.68, 16th, 17th	30.63	31.05, 1920
Minimum	29.26, 15th	29.24	28.56, 1895
Mean semi-daily	30.104	30.04	
Range	1.42	1.38	1.89, '00, '08; .88, '13,'31
Air Temperature, in degrees F.			
Highest	62, 20th	50.5	65.0, 1930
Lowest	0, 17th	–7.4	–22.5, 1918
Mean	27.8	23.7	
Range	62	58	
Highest mean daily	48, 20th		
Lowest mean daily	15.5, 17th		
Mean maximum	36.7		
Mean minimum	18.9		
Greatest daily range	32, 1st		
Least daily range	4, 26th		
Precipitation, in inches			
Precipitation	3.62	3.19	8.12, 1900; 0.62, 1901
Snow	6.00	13.99	48.75, 1893; 0.50, 1937
Maximum precipitation in 24 hrs.	0.97, 26th		
Number of days with .01 or more	13	10	15, '93, '20; 4, 1901
Wind, in miles			
Total movement	4097	4776	6445, 1896; 3438, 1892
Greatest daily movement	433, 16th		
Least daily movement	50, 14th		
Mean velocity	6.1	7.1	
Maximum velocity	48, 4th, 16th	31.7	48, 1934, 1937
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	5		
Northeast, days	0		
East, days	0		
Southeast, days	1		
South, days	6		
Southwest, days	2		
West, days	1		
Northwest, days	13		
Weather			
Mean relative humidity, percent	73.3	66.6	
Mean cloudiness, percent	59	50.9	66, '90, '27; 31, 1905
Number of clear days	15	10	17, '19, '24; 2, 1927
Number of fair days	6	8	16, 1920; 2, 1936
Number of cloudy days	7	10	16, 1894; 2, 1920
Number hours bright sunshine	173	158	221, 1924; 110, '27, '38
Percent of possible hours of bright sunshine	58.4	53.4	
Thunder and lightning			

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1938.

REMARKS

The weather during February was warmer than usual, with many rainy days. The walks and roads were either slushy or icy throughout most of the month. The mean temperature for the month was 27.8 degrees, the normal being 23.7 degrees. On the 20th the temperature reached 62 degrees, a temperature exceeded only twice in February during the last 50 years. The lowest temperature was zero on the 17th. The heating load during the month was 1042 degree-days, compared to a normal of 1156 degree-days. The total heating load for the season up to February 28 is 4583 degree-days, while the normal for this period is 4970 degree-days. The total precipitation for the month was 3.62 inches, compared to a normal of 3.19 inches. Only 6 inches of snow fell, the average snowfall for February being 14 inches. The total snowfall for the winter up to the present time is 27.25 inches, compared to a normal of 38.35 inches for this period. The total wind movement during the month was 4097 miles, the normal being 4776. High winds reaching 48 miles per hour were recorded on the 4th and 16th. There were 173 hours of bright sunshine, the normal being 158 hours.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 603 March 1939

Meteorological Observations

FOR

MARCH

1939

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. miles/hr*	Began	Ended	Rain	Snow
1	44	9 A	33	12 P	38.5	54	3.5	nw	139	40	1 A	2 A	.03	
2	32	4 P	22	12 P	27.0	45	11.2	nw	291	28				
3	44	4 P	16	7 A	30.0	63	11.2	s	116	20				
4	48	1 P	31	0 A	39.5	76	5.8	s	211	20				
5	44	1 P	36	7 A	40.0	96	0.0	w	52	12			T	
6	55	4 P	36	12 P	45.5	82	1.0	s	170	25	4 A	9-30 A	.49	
7	36	0 A	20	12 P	28.0	48	9.8	nw	478	48				
8	30	2 P	12	7 A	21.0	35	11.5	nw	307	22				
9	25	2 P	20	4 A	22.5	88	0.0	n	89	10	7 A	8 P	.60	6.0
10	33	1 P	11	12 P	22.0	52	11.6	n	198	32				
11	24	3 P	4	7 A	14.0	70	8.5	nw	119	22	4 P	12 P	.16	2.0
12	32	12 M	22	0 A	27.0	87	1.2	nw	154	17	0 A	12 P	.73	8.0
13	35	2 P	25	8 A	30.0	78	6.5	n	378	39	0 A	8 A	.31	2.0
14	39	3 P	26	6 A	32.5	57	11.8	n	261	25				
15	37	2 P	17	6 A	27.0	79	8.2	n	66	32	4 P	12 P	.83	
16	39	2 P	25	12 P	32.0	83	4.5	nw	125	25	0 A	5 A	.19	
17	35	12 M	19	7 A	27.0	60	11.8	nw	136	20				T
18	32	1 P	13	7 A	22.5	57	10.0	n	126	20				
19	29	2 P	12	6 A	20.5	49	12.0	n	93	14				
20	40	5 P	18	2 A	29.0	88	1.0	s	135	32				T
21	33	4 P	22	7 A	27.5	58	12.1	nw	280	32				
22	35	4 P	16	6 A	25.5	57	12.1	nw	137	22				
23	42	3 P	13	6 A	27.5	62	9.5	sw	58	8				
24	59	3 P	28	6 A	43.5	68	11.2	n	56	11				
25	52	4 P	31	7 A	41.5	77	8.0	n	107	22				
26	47	4 P	35	4 A	41.0	96	3.2	se	93	8	1:30 A	8 A	.13	
27	45	12 M	34	12 P	39.5	75	0.0	w	72	13	8 A	9 A	.03	
28	36	4 P	27	11 P	31.5	93	5.7	n	175	13	1 A	11 A	.53	1.5
29	43	4 P	22	6 A	32.5	42	12.5	nw	109	13				
30	35	4 P	31	5 A	33.0	97	0.0	se	126	9	3.30 A	6 P	.46	0.5
31	45	2 P	34	0 A	39.5	71	1.6	w	137	12				

*Based on least time required to blow one mile.

F. W. WHITTEMORE, *Observer.*

MONTHLY SUMMARY

March 1939		Normal	Extremes
Barometer, in inches			
(Readings reduced to sea level)			
Maximum	30.56, 8th, 19th	30.57	30.96, 1904
Minimum	29.40, 6th	29.24	28.47, 1914
Mean semi-daily	30 078	30 00	
Range	1.16	1 34	2.10, 1914; 0.85, 1915
Air Temperature, in degrees F.			
Highest	59, 24th	63.8	79.5, 1907, 1921
Lowest	4, 11th	6 1	−7.5, 1906
Mean	30.9	34 4	
Range	55	57 6	
Highest mean daily	45.5, 6th		
Lowest mean daily	14.0, 11th		
Mean maximum	38.9		
Mean minimum	23.0		
Greatest daily range	31, 24th		
Least daily range	4, 30th		
Precipitation, in inches			
Precipitation	4.49	3 70	7.13, 1899; 0.12, 1915
Snow	20.0	7.47	27, 1899; 0, 1921
Max precipitation in 24 hrs.	1.02, 15th 16th		
Number of days with 01 or more	12	11	17, 1890, 1913, 1936; 3, 1915
Wind, in miles			
Total movement	4994	5944	8182, 1896; 3006, 1905
Greatest daily movement	478, 7th		
Least daily movement	52, 5th		
Mean velocity	6 7	7 7	
Maximum velocity	48, 7th	31 2	48, 1932
Wind. direction			
Prevailing direction	NW	WNW	
North, days	10		
Northeast, days	0		
East, days	0		
Southeast, days	2		
South, days	4		
Southwest, days	1		
West, days	3		
Northwest, days	11		
Weather			
Mean relative humidity, percent	69 1	64.2	
Mean cloudiness, percent	48	51.8	
Number of clear days	15	11	22, 1924; 3, 1901
Number of fair days	7	10	17, 1900; 4, 1895, 1897, 1936
Number of cloudy days	9	10	21, 1901; 1, 1915
Number hours bright sunshine	217	199	292, 1924; 93, 1901
Percent of possible hours of bright sunshine	58	53.6	
Thunder and lightning			

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1938.

REMARKS

The weather during March was cold and wintry with snow on the ground throughout most of the month. The mean temperature for the month was 30.9 degrees, the normal for March being 34.4 degrees. It is interesting to note that the mean temperature for February of this year was 27.8 degrees while the mean temperature during March is normally 10.7 degrees higher than in February. The domestic heating load for March was 1057 degree-days while the normal for March is 949 degree-days. The total heating load for the winter to the end of March is 5640 degree-days, the normal for this period being 5919 degree-days.

A total of 20 inches of snow fell during the month. The storm on the 11th, 12th, and 13th was generally recognized as the heaviest snowfall in March since the great storm of 1888. Twelve inches of snow fell during the days mentioned and this was preceded with 6 inches on the 9th. The total precipitation during the month was 4.49 inches, the normal being 3.70 inches. There were 217 hours of bright sunshine which is well above the average of 199 hours. A high wind velocity of 48 miles per hour was recorded on the 7th.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series	Bulletin No. 604	April 1939

Meteorological Observations

FOR

APRIL

1939

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. miles/hr*	Began	Ended	Rain	Snow
1	56	3 P	33	6 A	44.5	61	9.8	s	101	13				
2	43	0 A	33	8 A	38.0	84	1.0	n	292	28	3 A	11 A	1.23	2.00
3	41	12 M	31	12 P	36.0	64	3.0	nw	273	22				T
4	42	4 P	29	4 A	35.5	62	9.4	nw	243	22				
5	49	4 P	26	6 A	37.5	55	12.7	nw	168	14				
6	49	11 A	27	4 A	38.0	79	2.5	s	106	20	2 P	10 P	.90	
7	44	12 M	28	12 P	36.0	53	8.5	n	318	28				
8	40	2 P	24	5 A	32.0	64	2.0	se	86	14				
9	41	3 P	30	12 P	35.5	67	5.3	w	195	32				T
10	36	5 P	26	4 A	31.0	92	0.0	nw	71	10	8 A	8 P	.08	
11	50	6 P	33	2 A	41.5	98	0.1	nw	66	15	7 A	12 P	.59	
12	47	4 P	28	12 P	37.5	72	3.5	w	236	32	0 A	2 A	.19	
13	48	4 P	25	3 A	36.5	47	9.8	nw	329	30				
14	57	3 P	33	6 A	45.0	54	10.0	sw	232	39				
15	53	3 P	35	12 P	44.0	64	8.5	nw	263	25	2:30 A	3 A	.03	
16	51	4 P	27	4 A	39.0	38	11.8	n	123	12				
17	55	2 P	28	6 A	41.5	61	9.0	se	110	11	6 P	12 P	.26	
18	42	2 P	35	6 A	38.5	97	0.0	n	119	9	0 A	12 M	.40	
19	49	6 P	39	6 A	44.0	98	0.0	nw	78	10	2 A	8 P	.56	
20	57	3 P	38	5 A	47.5	66	8.3	nw	144	18				
21	65	3 P	32	6 A	48.5	59	13.0	s	127	17				
22	65	1 P	45	7 A	55.0	68	8.0	w	187	22	6 A	7 A	.15	
23	59	5 P	43	12 P	51.0	62	6.5	w	167	25				
24	64	4 P	37	4 A	50.5	63	7.5	se	143	22			T	
25	82	5 P	41	5 A	61.5	65	12.5	sw	56	17				
26	53	4 P	43	7 A	48.0	94	0.0	ne	105	13	6 A	12 P	.09	
27	51	3 P	42	12 P	46.5	92	0.0	e	62	11	7 A	8 P	.05	
28	49	6 P	37	12 P	43.0	83	1.8	ne	129	12	0 A	6 A	.03	
29	61	2 P	32	6 A	46.5	51	13.8	n	113	17				
30	59	4 P	31	6 A	45.0	50	10.7	nw	69	13				
31														

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*Based on least time required to blow one mile.

F. W. WHITTEMORE, *Observer.*

MONTHLY SUMMARY

April 1939		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.48, 17th	30.48	30.71, 1911
Minimum	29.33, 2nd	29.38	28.99, 1907, 1929
Mean semi-daily	29.925	29.99	
Range	1.15	1.11	1.52, 1930; .72, 1919
Air Temperature, in degrees F.			
Highest	82, 25th	79.4	88.5, 1896
Lowest	24, 8th	22.0	8.5, 1923
Mean	42.5	45.7	52. 1921; 41.2, 1926
Range	58	57.4	
Highest mean daily	61.5, 25th		
Lowest mean daily	31.0, 10th		
Mean maximum	51.9		
Mean minimum	33.0		
Greatest daily range	41, 25th		
Least daily range	7, 18th		
Precipitation, in inches			
Precipitation	4.56	3.35	6.89, 1929; .76, 1892
Snow	2.00	2.17	11, 1891; 0, 1910, 1934
Max. precipitation in 24 hrs.	1.23, 2nd		
Number of days with .01 or more	13	11	18, 1909; 3, 1892
Wind, in miles			
Total movement	4711	5404	8208, 1908; 3853, 1917
Greatest daily movement	329, 13th		
Least daily movement	56, 25th		
Mean hourly velocity	6.5	7.5	
Maximum velocity	39, 14th	31.4	40, 1935, 1938
Wind, direction			
Prevailing direction	NW	WNW	
North, days	5		
Northeast, days	2		
East, days	1		
Southeast, days	3		
South, days	3		
Southwest, days	2		
West, days	4		
Northwest, days	10		
Weather			
Mean relative humidity, percent	68.8	61.6	
Mean cloudiness, percent	69	51.8	75, 1901; 34, 1925, 1927
Number of clear days	10	11	19, 1911; 3, 1898, 1902
Number of fair days	8	9	18, 1915; 2, 1894, 1901
Number of cloudy days	12	10	22, 1901; 3, 1899, 1924
Number hours bright sunshine	189	220	296, 1911; 103, 1901
Percent of possible hours of bright sunshine	47	54.7	
Thunder and lightning	26th		
Frosts after the 15th	None		
Last snow	April 9		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1938.

REMARKS

The weather during April was wet, cold, and disagreeable. The total precipitation for the month was 4.56 inches, the normal being 3.35 inches. Two inches of snow fell during the month, all on April 2. The total precipitation since January 1 is now 14.88 inches. The normal for this period is 13.85 inches.

The mean temperature for the month was 42.5 degrees. This is the coldest April since 1926, when the mean was 41.2 degrees. The mean temperatures for April 1898, 1907, and 1917 were also lower than that of the past month. The domestic heating load was 675 degree-days during April, compared to a normal of 579 degree-days. The total heating load for the season is 6315 degree-days; the normal for this period is 6498 degree-days. The total snowfall during the past winter was 49.25 inches, the normal being 47.73 inches. It is interesting to note that 23.5 inches fell during the two storms of November 24-25 and March 11-13.

There were 189 hours of bright sunshine, compared to a normal of 220 hours.

Dr. J. K. Shaw gives the following report on vegetation: "In contrast to the very early season of 1938, the present spring will be recorded as very late. Vegetation is about a month behind that of last year and nearly two weeks later than average. However, a few very warm days would enable vegetation to catch up; the late spring will have little if any effect on the maturity of most fruit crops. A late spring is on the whole favorable, for it shortens the probable period of danger from spring frosts.

"Prospects for a peach crop are good as there was no cold severe enough to kill the fruit buds. We have observed considerable injury to apple wood, probably caused by the unseasonable cold of the last week in November before the wood had completely matured. The temperature of −4° on November 26, 1938 is 7½ degrees lower than any previously recorded for this month at this station, and no lower temperature was recorded during the winter. It will not be surprising if this most unusual cold caused some injury to fruit plants."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 605 May 1939

Meteorological Observations

FOR

MAY

1939

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature							Wind			Precipitation			
	Maximum		Minimum											
Day	Degrees	Time	Degrees	Time	Mean	Mean Relative Humidity	No. Hours of Bright Sunshine	Prevailing Direction	Total Movement	Max. miles/hr*	Began	Ended	Rain	Snow
1	59	12 M	34	6 A	46.5	52	7.8	n	118	14				
2	61	1 P	36	6 A	48.5	51	8.0	n	92	8				
3	59	1 P	38	6 A	48.5	52	3.5	n	197	20				
4	68	4 P	43	5 A	55.5	48	6.0	n	220	22				
5	70	2 P	51	3 A	60.5	57	4.3	nw	168	25				
6	82	4 P	41	6 A	61.5	59	14.1	sw	67	9				
7	89	3 P	55	12 P	72.0	50	14.1	nw	180	28				
8	75	4 P	45	6 A	60.0	73	7.0	se	110	14				
9	67	5 P	57	4 A	62.0	96	0.0	se	178	15	10:30 A	8:30 P	.23	
10	79	3 P	54	5 A	66.5	46	14.4	w	154	18				
11	71	4 P	55	12 P	63.0	43	9.3	nw	212	21				
12	63	4 P	42	6 A	52.5	54	9.3	nw	195	17				
13	55	4 P	37	6 A	46.0	64	0.5	sw	98	11				
14	66	4 P	32	5 A	49.0	56	5.5	sw	69	10				
15	67	2 P	36	6 A	51.5	45	14.0	se	132	18				
16	66	4 P	32	5 A	49.0	47	14.4	se	98	15				
17	73	3 P	33	6 A	53.0	51	13.5	sw	65	10				
18	63	6 P	46	12 P	54.5	46	14.6	nw	172	20				
19	80	4 P	35	6 A	57.5	66	11.5	s	118	13				
20	79	3 P	52	7 A	65.5	52	10.5	n	132	13				
21	74	3 P	55	6 A	64.5	60	6.0	nw	88	9			T	
22	57	0 A	51	12 P	54.0	97	0.0	ne	71	6	6 A	4 P	.46	
23	60	5 P	50	4 A	55.0	85	0.0	se	64	9	6:30 P	7 P	.06	
24	72	5 P	48	5 A	60.0	71	10.0	n	126	10				
25	81	6 P	49	4 A	65.0	66	8.0	w	83	8				
26	78	3 P	56	5 A	67.0	46	14.6	s	81	10				
27	81	3 P	55	6 A	68.0	72	9.6	se	149	18				
28	89	1 P	65	1 A	77.0	76	9.4	se	183	39	2 P	11 P	1.40	
29	82	3 P	60	12 P	71.0	67	14.4	nw	159	25				
30	82	3 P	55	5 A	68.5	75	14.9	w	135	18			T	
31	89	4 P	64	4 A	76.5	53	14.8	n	93	12				

*Based on least time required to blow one mile.

F. W. Whittemore, *Observer.*

MONTHLY SUMMARY

May 1939		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.30, 13th	30.39	30.62, 1936
Minimum	29.43, 9th	29.51	29.10, 1938
Mean semi-daily	29.960	29.96	
Range	0.87	.88	
Air Temperature, in degrees F.			
Highest	89, 7th, 28th, 31st	86.1	94.5, 1896, 1911
Lowest	32, 14th, 16th	31.2	24.0, 1900
Mean	59.7	57.1	
Range	57	54.9	
Highest mean daily	77, 28th		
Lowest mean daily	46, 13th		
Mean maximum	72.2		
Mean minimum	47.2		
Greatest daily range	45, 19th		
Least daily range	6, 22nd		
Precipitation, in inches			
Precipitation	2.15	3.60	7.44, 1931; .48, 1903
Snow			
Max. precipitation in 24 hrs.	1.40, 28th		
Number of days with .01 or more	4	12	20, 1901; 5, 1903
Wind, in miles			
Total movement	4007	4504	5946, 1907; 2180, 1894
Greatest daily movement	220, 4th		
Least daily movement	64, 23rd		
Mean hourly velocity	5.4	6.1	
Maximum velocity	39, 28th	28.8	45, 1935
Wind, direction			
Prevailing direction	WNW	W	
North, days	7		
Northeast, days	1		
East, days	0		
Southeast, days	7		
South, days	2		
Southwest, days	4		
West, days	3		
Northwest, days	7		
Weather			
Mean relative humidity, percent	60.5	60.7	
Mean cloudiness, percent	55.2	52.1	70, 1901; 30, 1923
Number of clear days	13	11	20, 1923; 0, 1927
Number of fair days	12	11	17, 1907, 1926; 5, 1923
Number of cloudy days	6	9	20, 1927; 3, 1903, 1922
Number hours bright sunshine	284	252	334, 1922; 137, 1927
Percent of possible hours of bright sunshine	62.7	55.6	
Thunder and lightning	9th, 21st, 28th		
Last frost	May 16	May 12	June 8, 1932; Apr. 23, 1904

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1938.

REMARKS

The weather during May was warm and dry. The mean temperature for the month was 59.7 degrees compared to a normal of 57.1 degrees. This is the highest mean temperature for May since 1922 with the exception of 1933 when it was 60.5 degrees. The highest temperature was 89 degrees which occurred on three days: the 7th, 28th, and 31st. The lowest temperature during the month was 32 degrees on the 14th and 16th. The total heating load for the month of May was 166 degree-days, making the heating load for the season 6481 degree-days, the normal being 6743 degree-days for this period.

The total rainfall for the month was 2.15 inches; the normal, 3.60 inches. In 1931, 7.44 inches fell in May and in 1903, .48 inch. There was a heavy thunderstorm with high wind on the 28th, 1.40 inches being recorded. The total precipitation since the first of the year is now 17.03 inches, compared to a normal of 17.45 inches for this period. Four days of rain were recorded during the month, which is the least number of rainy days on record for May since 1889. Only one day of rain, the 9th, was recorded from April 29 to May 20.

There were 284 hours of bright sunshine compared to a normal of 252 hours for May. The mean humidity for the month was nearly normal. The last frost occurred on May 16, the normal date being May 12.

Dr. J. K. Shaw of the Pomology Department makes the following report on vegetation: "Vegetation made rapid progress during May and apple trees were in full bloom on about May 18-22, approximately one week later than normal. Slight frost did some injury to early blooming strawberries and tender plants, but the amount of injury was insignificant. Some winter injury has been noted on nursery-grown apple trees of tender varieties, probably from the unusual cold of late November. Raspberry canes were badly killed, probably from the same cause. This will, in many plantations, severely reduce the crop.

"The weather during the blooming period of tree fruits was favorable. McIntosh apple trees bloomed heavily and should have a good crop. Other varieties were variable.

"Most of the month was rather dry but heavy showers toward the end of the month renewed the water supply and trees will have water enough to meet their needs for some time."

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MASSACHUSETTS

AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 606 June 1939

Meteorological Observations

FOR

JUNE

1939

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. miles/hr*	Began	Ended	Rain	Snow
1	77	3 P	56	5 A	66.5	59	8.0	n	112	8	1 A	2 A	.08	
2	77	5 P	49	5 A	63.0	50	12.5	w	92	13				
3	77	3 P	46	5 A	61.5	55	13.8	s	106	12				
4	76	5 P	51	3 A	63.5	80	6.1	w	130	17	7:30 A	10:30 A	.17	
5	81	4 P	48	6 A	64.5	49	12.2	w	127	20				
6	68	7 A	54	12 P	61.0	55	10.0	n	255	32				
7	79	5 P	42	6 A	60.5	56	13.3	w	86	9				
8	83	4 P	52	5 A	67.5	82	4.5	sw	82	11	7 P	10 P	.43	
9	88	5 P	65	6 A	76.5	76	11.4	sw	82	20			T	
10	85	3 P	62	5 A	73.5	77	6.7	sw	58	10			T	
11	90	5 P	67	5 A	78.5	71	15.0	s	117	13			T	
12	82	1 P	63	12 P	72.5	59	14.3	w	156	14				
13	80	3 P	56	5 A	68.0	60	10.6	sw	72	8	10 P	12 P	.12	
14	74	2 P	58	12 P	66.0	76	2.5	nw	158	17	0 A	4:30 P	.63	
15	77	4 P	49	4 A	63.0	57	10.0	sw	118	13			T	
16	76	5 P	61	4 A	68.5	53	14.1	nw	261	20			T	
17	58	4 P	51	12 P	54.5	91	0.0	nw	101	48	2 A	8 A	.80	
18	73	4 P	46	4 A	59.5	63	9.0	w	57	9				
19	75	3 P	47	5 A	61.0	67	9.5	s	119	13				
20	79	3 P	62	8 A	70.5	95	0.6	s	71	6	7 A	9:30 A	.05	
21	84	3 P	62	6 A	73.0	54	15.3	nw	154	15				
22	81	3 P	55	5 A	68.0	52	11.7	s	86	7				
23	73	6 P	57	4 A	65.0	84	0.5	se	102	17	2:30 A	4:30 P	.20	
24	79	3 P	50	5 A	64.5	64	10.3	s	71	14	11:30 P	12 P	.01	
25	70	5 P	57	6 A	63.5	87	4.3	n	103	17	0 A	8 P	.20	
26	70	3 P	59	5 A	64.5	82	1.5	n	83	10	6 A	8 A	.01	
27	80	5 P	57	4 A	68.5	68	12.5	w	45	7				
28	79	4 P	58	5 A	68.5	80	6.8	s	79	8				
29	83	2 P	64	5 A	73.5	79	6.8	s	149	14			T	
30	78	4 P	67	0 A	72.5	92	0.2	s	211	11	1:30 A	11 P	.51	

*Based on least time required to blow one mile.

J F. Hanson, *Observer.*

MONTHLY SUMMARY

June 1939		Normal	Extremes
Barometer, in inches			
(Readings reduced to sea level)			
Maximum	30.26, 3rd, 27th	30.30	30.54, 1889
Minimum	29.63, 30th	29.55	29.24, 1902
Mean semi-daily	29.980	29.94	
Range	0.63	0.75	
Air Temperature, in degrees F.			
Highest	90, 11th,	91.2	101, 1919
Lowest	42, 7th,	40.0	34, 1891
Mean	66.7	65.7	
Range	48	51 3	
Highest mean daily	78.5, 11th		
Lowest mean daily	54.5, 17th		
Mean maximum	77.7		
Mean minimum	55.7		
Greatest daily range	37, 7th		
Least daily range	7, 17th		
Precipitation, in inches			
Precipitation	3.21	3 51	9.68, 1922; 0.76, 1908
Snow			
Max precipitation in 24 hrs.	.80, 17th		
Number of days with 01 or more	12	11	17, 1922; 4, 1908
Wind, in miles			
Total movement	3443	3585	4571, 1908; 1409, 1906
Greatest daily movement	261, 16th		
Least daily movement	45. 27th		
Mean hourly velocity	4.8	5 0	
Maximum velocity	48, 17th	24.6	40, 1932
Wind. direction			
Prevailing direction	WSW	WSW	
North, days	4		
Northeast, days	0		
East, days	0		
Southeast, days	1		
South, days	9		
Southwest, days	5		
West, days	7		
Northwest, days	4		
Weather			
Mean relative humidity, percent	69 1	66 9	
Mean cloudiness, percent	60	51.1	71, 1903; 28, 1908
Number of clear days	12	10	22, 1908; 1, 1927
Number of fair days	11	12	23, 1912; 4, 1895, 1903
Number of cloudy days	7	8	22, 1903; 1, 1923
Number hours bright sunshine	254	257	362, 1908; 102, 1903
Percent of possible hours of bright sunshine	55.6	54.0	
Thunder and lightning	1, 11, 13, 17, 24, 25		
Last frost	May 16	May 12	June 8,1932; Apr. 23, 1904

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1938.

REMARKS

The weather during June was very nearly normal in most respects. The month generally was considered dry, but apparently there were a number of local showers which gave more rain at the weather observatory than at nearby points. The total rainfall for the month was 3.21 inches which is .30 less than normal. This rain fell on 12 days. In addition, there were traces of rain with a fall of less than .01 inch on 6 additional days. The total rainfall since January 1 is now 20.24 inches; the normal for this period is 20.96 inches. The mean temperature for the month was 66.7 degrees which is one degree higher than normal. The highest temperature was 90 degrees on the 11th and the lowest, 42 degrees on the 7th. The domestic heating load for the month was 40 degree-days, compared to a normal of 69 degree-days. The total heating load for the season was 6521 degree-days and the normal, 6812 degree-days.

There was a heavy windstorm on the 17th, with considerable damage to trees. The maximum velocity recorded was 48 miles an hour. There were 254 hours of bright sunshine which is 3 hours less than normal.

Dr. J. K. Shaw reports that "all fruit plants made normal progress during June. Tree fruits have set fair to good crops. Strawberries produced fair to good crops but raspberries and blackberries will be light due to winter injury to the canes. Rainfall has been rather short but timely showers have thus far prevented real injury to fruit crops. Scab control on McIntosh apple trees has not been as difficult as last year because of fewer humid periods, and thorough and timely spraying has been effective in control of the disease."

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 607 July 1939

Meteorological Observations

FOR

JULY
1939

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. miles/hr*	Began	Ended	Rain	Snow
	Degrees	Time	Degrees	Time										
1	81	3 P	61	12 P	71.0	65	15.0	w	170	13				
2	74	4 P	52	5 A	63.0	58	13.5	nw	179	20				
3	81	4 P	45	5 A	63.0	60	15.2	nw	71	10				
4	89	5 P	51	6 A	70.0	63	14.5	se	66	9				
5	90	2 P	67	4 A	78.5	68	5.9	se	122	12				
6	83	2 P	68	4 A	75.5	75	5.8	se	151	17				
7	93	3 P	69	4 A	81.0	72	9.0	se	108	9			T	
8	93	1 P	61	12 P	77.0	71	5.7	s	124	22	2:30 P	3 P	.17	
9	90	5 P	68	5 A	79.0	66	11.7	w	62	5				
10	86	2 P	66	12 P	76.0	56	8.8	nw	123	18				
11	80	4 P	56	5 A	68.0	60	14.9	n	141	17				
12	79	4 P	54	4 A	66.5	60	7.5	n	13+	25			T	
13	74	12 M	46	4 A	60.0	54	7.0	sw	101	11				
14	82	1 P	67	0 A	74.5	72	6.4	s	123	13	3.30 A	2 P	.76	
15	76	4 P	54	12 P	65.0	51	13.3	nw	160	18				
16	73	3 P	47	5 A	60.0	59	3.1	n	87	11				
17	74	3 P	52	5 A	63.0	62	4.8	nw	130	18				
18	80	6 P	47	5 A	63.5	59	13.7	w	48	6				
19	81	6 P	53	5 A	67.0	52	11.0	nw	98	8				
20	83	3 P	52	5 A	67.5	55	13 7	nw	68	13			T	
21	83	4 P	54	6 A	68.5	60	9 4	sw	57	5				
22	81	4 P	53	5 A	67.0	64	14.0	se	78	11				
23	85	3 P	49	5 A	67.0	58	13.0	nw	59	11				
24	90	4 P	55	5 A	72.5	63	13.0	sw	49	8			T	
25	92	1 P	68	6 A	80.0	66	8.5	n	91	15			T	
26	92	3 P	65	5 A	78.5	73	6.9	s	67	9				
27	84	2 P	68	5 A	76.0	86	1.4	s	74	7	2:30 P	12 P	.14	
28	86	4 P	69	12 P	77.5	74	6.3	s	102	13	0 A	2 A	.07	
29	88	3 P	67	5 A	77.5	74	3.5	e	77	13	3 P	8 P	.64	
30	82	3 P	68	1 A	75.0	82	1.0	se	69	9	3 P	6 P	.18	
31	84	11 A	72	4 A	78.0	80	5.5	se	83	18	11:30 A	1:30 P	.34	

*Based on least time required to blow one mile.

J. F. HANSON, *Observer.*

MONTHLY SUMMARY

July 1939		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.28, 21st, 22nd	30.27	30.50, 1892
Minimum	29.58, 14th	29.59	29.27, 1932
Mean semi-daily	29.971	29.96	
Range	0.70	.68	.97, 1892; .47, 1938
Air Temperature, in degrees F.			
Highest	93, 7th, 8th	93.9	104, 1911
Lowest	45, 3rd	46.4	40, 1890 ,1898
Mean	71.2	70.8	
Range	48	47.7	
Highest mean daily	81, 7th		
Lowest mean daily	60, 13th, 1 th		
Mean maximum	83.5		
Mean minimum	58.8		
Greatest daily range	38, 4th		
Least daily range	12, 31st		
Precipitation, in inches			
Precipitation	2.30	4.10	14.51, 1897; .70, 1929
Snow			
Max. precipitation in 24 hrs.	.76, 14th		
Number of days with .01 or more	7	11	20, 1915; 4, 1924
Wind, in miles			
Total movement	3072	3422	5,097, 1909; 1,109, 1894
Greatest daily movement	179, 2nd		
Least daily movement	48, 18th		
Mean hourly velocity	4.1	4.6	
Maximum velocity	25, 12th	28.7	44, 1936
Wind, direction			
Prevailing direction	WSW	SW	
North, days	4		
Northeast, days	0		
East, days	1		
Southeast, days	7		
South, days	5		
Southwest, days	3		
West, days	3		
Northwest, days	8		
Weather			
Mean relative humidity, percent	65.1	68.4	
Mean cloudiness, percent	50	50.9	69, 1914; 31, 1924
Number of clear days	13	10	22, 1923; 0, 1915
Number of fair days	14	14	24,'09,'21; 5,'89,'23,'28,'36
Number of cloudy days	4	7	18, 1889; 0, 1910
Number hours bright sunshine	283	268	371, 1910; 180, 1931
Percent of possible hours of bright sunshine	61.3	58	
Thunder and lightning	7, 8, 14, 24, 25, 31		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1938.

REMARKS

The weather during July was very dry until the last few days of the month. Only .95 of an inch fell until July 27. This light rainfall in July with a deficiency of 1.45 inches in May and .30 in June made a dry growing season with considerable damage to crops. The total rainfall for the month was 2.30 inches compared to a normal of 4.10 inches. The least rainfall we have had in July was .70 inch in 1929. The total precipitation since January 1 is now 22.54 inches. The normal precipitation for this period is 25.06 inches.

The mean temperature for the month was 71.2 degrees, the normal being 70.8 degrees. The highest temperature during the month was 93 degrees which occurred on the 7th and 8th. The lowest was 45 degrees on the 3rd. The total wind movement during the month was 3072 miles, the normal being 3422 miles. The maximum velocity was 25 miles on the 12th. There were 283 hours of bright sunshine compared to a normal of 268 hours.

Dr. J. K. Shaw of the Pomology Department gives the following report: "The period of dry weather, which began in June, continued until July 27 with only one or two showers. During the last few days of July there were several showers, bringing sufficient water to relieve conditions for a week or two. The drouth did not become severe enough to do great damage to fruit crops though it must have interfered with the development of full size on early varieties ripening in late July and early August. Lawns and shallow-rooted crops suffered more or less severely. If timely rains come during August, there will be, on the whole, little drouth injury to fruit crops during this season. The dry weather has made weed control easier and has been unfavorable to the development of diseases and certain insects, and should favor the development of fruit buds for next season's crop."

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AMHERST, MASS.

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 608 August 1939

Meteorological Observations

FOR

AUGUST

1939

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. miles/hr*	Began	Ended	Rain	Snow
1	87	3 P	65	12 P	76.0	62	14.5	w	165	17				
2	85	4 P	55	6 A	70.0	56	14.5	se	58	8				
3	88	4 P	66	4 A	77.0	78	10.3	se	169	17	6 P	10:30 P	.23	
4	78	10 A	65	12 P	71.5	94	1.3	sw	73	14	10:30 A	4:30 P	2.00	
5	83	3 P	61	6 A	72.0	68	12.0	nw	79	13				
6	88	3 P	54	6 A	71.0	63	14.3	sw	43	8				
7	87	4 P	63	5 A	75.0	71	10.1	w	64	8				
8	86	2 P	63	6 A	74.5	70	10.5	sw	110	10				
9	88	1 P	69	2 A	78.5	82	5.0	s	146	12	3 P	4 P	.04	
10	83	3 P	62	5 A	72.5	63	14.2	nw	124	17				
11	87	3 P	58	5 A	72.5	69	14.1	nw	51	8				
12	86	2 P	58	5 A	72.0	75	11.1	s	108	10				
13	85	4 P	69	12 P	77.0	91	3.9	s	189	25	6 P	7 P	.43	
14	85	3 P	63	12 P	74.0	75	14.0	nw	83	10	0 A	1 A	.07	
15	89	3 P	60	6 A	74.5	62	14.0	s	51	7				
16	87	1 P	65	6 A	76.0	73	10.6	se	134	28			T	
17	88	4 P	64	4 A	76.0	73	10.2	se	67	6				
18	88	4 P	60	5 A	74.0	74	10.0	nw	74	9				
19	84	1 P	72	4 A	78.0	73	8.1	nw	124	10				
20	84	2 P	67	6 A	75.5	90	2.8	s	178	18	2 A	4 P	.87	
21	87	1 P	75	6 A	81.0	86	2.7	s	112	11	1:30 P	2:30 P	.09	
22	89	2 P	67	12 P	78.0	73	10.7	sw	103	10				
23	86	3 P	60	6 A	73.0	64	12.0	sw	50	5				
24	88	3 P	59	6 A	73.5	72	10.5	sw	72	11				
25	80	12 M	66	5 A	73.0	85	2.4	s	74	5	12 M	5 P	.16	
26	82	2 P	64	12 P	73.0	67	8.9	n	122	14				
27	82	3 P	58	6 A	70.0	71	9.9	n	122	10				
28	82	2 P	56	5 A	69.0	66	10.0	e	111	11				
29	73	11 A	56	6 A	64.5	69	10.2	ne	118	13			T	
30	76	4 P	60	5 A	68.0	67	3.4	n	192	20			T	
31	70	3 P	63	7 A	66.5	77	0.8	n	169	14				

*Based on least time required to blow one mile.

J F. HANSON, *Observer.*

MONTHLY SUMMARY

August 1939		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.30, 12th	30.32	30.50, 1934
Minimum	29.73, 9th	29.61	28.87, 1930
Mean semi-daily	29.989	30.00	
Range	.57	.71	
Air Temperature, in degrees F.			
Highest	89, 15th, 22nd	91.6	100, 1918
Lowest	54, 6th	43.4	37, 1894, 1908
Mean	73.5	68.6	
Range	35	48.1	
Highest mean daily	81, 21st		
Lowest mean daily	64.5, 29th		
Mean maximum	84.2		
Mean minimum	62.7		
Greatest daily range	34, 6th		
Least daily range	7, 31st		
Precipitation, in inches			
Precipitation	3.89	4.08	8.40, 1928; .31, 1894
Snow			
Max. precipitation in 24 hrs.	2.23, 3rd, 4th		
Number of days with .01 or more	8	11	16, 1892, 1933; 4, 1899
Wind, in miles			
Total movement	3335	3127	4,271, 1910; 1,920, 1894
Greatest daily movement	192, 30th		
Least daily movement	50. 23rd		
Mean hourly velocity	4.5	4.2	
Maximum velocity	28, 16th	22.7	35, 1915
Wind, direction			
Prevailing direction	SW	SW	
North, days	4		
Northeast, days	1		
East, days	1		
Southeast, days	4		
South, days	7		
Southwest, days	6		
West, days	2		
Northwest, days	6		
Weather			
Mean relative humidity, percent	72.9	70.2	
Mean cloudiness, percent	57	49.7	67, 1901; 27, 1923
Number of clear days	21	9	17, 1921, 1936; 0, 1915, 1929
Number of fair days	3	13	25, 1912; 5, '93, '33, '36
Number of cloudy days	7	9	18, 1901, '28; 2, '10, '23
Number hours bright sunshine	287	237	317, 1921; 152, 1915, 1929
Percent of possible hours of bright sunshine	66.9	55.2	
Thunder and lightning	3, 4, 9, 13, 16, 17, 18, 21, 25		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1938.

REMARKS

The weather during August was considerably warmer than usual with a mean temperature of 73.5 degrees. This is the highest mean for August in Amherst beginning in 1837. In August 1937 the mean was 73.3 degrees. The normal mean temperature for August is 68.6 degrees. Not only was the temperature unusually high but it was accompanied with high humidity on many days. The mean relative humidity for the month was 72.9 percent compared to a normal of 70.2 percent. The mean temperature for the three summer months June, July and August was 70.5 degrees. This has been exceeded only three times since 1837: in 1870 the mean temperature for the three months was 71.7 degrees; in 1876, 71.8 degrees; and in 1937, 70.6 degrees. The last three years have had the hottest summers since observations have been taken at the State College, beginning in 1889.

The rain fall during the month was 3.89 inches, the normal being 4.08 inches. Most of the rain fell in the form of local showers which were accompanied with an unusual amount of thunder and lightning.

There were 287 hours of bright sunshine compared to a normal of 237 hours.

Dr. J. K. Shaw of the Pomology Department gives the following report: "The weather during August continued reasonably favorable for fruit development. Timely showers prevented serious drought, and midseason and later varieties are sizing up well and developing good color. Probably due to the dry weather of late June and July, considerable internal cork is developing in certain varieties of apples and will cause serious losses in some orchards. The crop of McIntosh in the College orchard will be heavy and that of most other orchards fair to good. It is quite free of diseases but many apples show hail marks from the hail storm of early summer."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 609 September 1939

Meteorological Observations

FOR

SEPTEMBER

1939

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. miles/hr*	Began	Ended	Rain	Snow
1	82	3 P	54	5 A	68.0	68	10.3	se	95	9				
2	86	3 P	61	6 A	73.5	78	7.4	s	128	28	3 P	3:30 P	.39	
3	80	3 P	61	1 A	70.5	88	4.8	s	114	11			T	
4	81	3 P	61	5 A	71.0	79	8.2	s	145	10				
5	76	3 P	56	12 P	66.0	82	4.4	s	183	21	9 A	12 P	.30	
6	69	3 P	49	6 A	59.0	52	10.5	nw	190	25				
7	74	4 P	51	0 A	62.5	57	12.8	nw	142	18				
8	60	10 A	51	0 A	55.5	87	0.0	sw	55	13	9 A	5 P	.51	
9	74	4 P	46	7 A	60.0	71	11.0	n	81	12				
10	67	6 P	56	12 P	61.5	84	0.0	s	104	32	11:30 A	4 P	.38	
11	67	4 P	47	12 P	57.0	61	7.9	nw	220	25				
12	69	12 M	42	4 A	55.5	65	7.0	nw	78	9				
13	76	3 P	44	6 A	60.0	69	12.4	w	57	8				
14	79	3 P	48	6 A	63.5	65	12.5	se	133	11				
15	87	3 P	59	6 A	73.0	67	12.5	se	112	8				
16	91	2 P	62	6 A	76.5	70	12.2	se	114	11				
17	74	12 M	48	12 P	61.0	70	5.0	n	228	25			T	
18	67	5 P	41	12 P	54.0	62	12.2	n	157	14				
19	71	3 P	35	5 A	53.0	68	10.0	se	89	12				
20	74	3 P	45	4 A	59.5	85	7.3	s	114	13	7 P	9:30 P	.12	
21	66	3 P	45	12 P	55.5	70	6.0	n	103	11				
22	73	3 P	37	6 A	55.0	72	9.7	sw	61	9				
23	82	2 P	48	6 A	65.0	67	10.0	sw	175	17				
24	76	4 P	48	7 A	62.0	75	7.5	ne	57	8				
25	76	2 P	54	3 A	65.0	80	2.8	s	161	20				
26	65	8 A	42	12 P	53.5	82	0.0	n	181	22	12 M	11 P	.11	
27	46	8 P	41	7 A	43.5	97	0.5	n	104	25	3 A	10 P	1.08	
28	69	5 P	44	7 A	56.5	83	8.0	nw	60	8				
29	65	3 P	48	1 A	56.5	82	0.0	s	98	9				
30	82	2 P	56	0 A	69.0	80	5.1	se	188	13	9 P	10 P	.08	

*Based on least time required to blow one mile.

J. F. Hanson, *Observer.*

MONTHLY SUMMARY

September 1939		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.56, 19th	30.45	30.65, 1924
Minimum	29.62, 10th	29.57	28.41, 1938
Mean semi-daily	30.038	30.06	
Range	.94	.88	1.99, 1938; .57, 1910
Air Temperature, in degrees F.			
Highest	91, 16th	87.7	97, 1895, 1929
Lowest	35, 19th	33.2	24.5, 1914
Mean	61.4	61.7	
Range	56	54.5	
Highest mean daily	76.5, 16th		
Lowest mean daily	43.5, 27th		
Mean maximum	73.5		
Mean minimum	49.3		
Greatest daily range	36, 19th, 22nd		
Least daily range	5, 27th		
Precipitation, in inches			
Precipitation	2.97	4.26	14.55, 1938; .52, 1914
Snow			
Max. precipitation in 24 hrs.	1.08, 27th		
Number of days with .01 or more	8	10	16, 1933; 3, 1903
Wind, in miles			
Total movement	3727	3271	4,686, 1896; 1,414, 1894
Greatest daily movement	228, 17th		
Least daily movement	55, 8th		
Mean hourly velocity	5.2	4.5	
Maximum velocity	32, 10th	25.9	80, 1938
Wind, direction			
Prevailing direction	SSW	WSW	
North, days	6		
Northeast, days	1		
East, days	0		
Southeast, days	6		
South, days	8		
Southwest, days	3		
West, days	1		
Northwest, days	5		
Weather			
Mean relative humidity, percent	73.9	73.6	
Mean cloudiness, percent	47	49.9	70, 1934; 27, 1908, 1914
Number of clear days	13	10	19, 1932; 2, 1907, 1928
Number of fair days	11	10	19, 1908; 3, 1889
Number of cloudy days	6	10	20, 1934; 4, 1908, 1916
Number hours bright sunshine	218	201	255, 1916; 106, 1934
Percent of possible hours of bright sunshine	58.4	54.9	
Thunder and lightning	10th, 27th		
Frosts	None		
First Frost		Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1938.

REMARKS

The weather during September was nearly normal in most respects. There was less rain than usual, with 2.97 inches, the normal being 4.26 inches. The total rainfall since January 1 is now 29.40 inches compared to a normal of 33.40 inches for this period. The mean temperature for the month was 61.4 degrees, while the normal mean temperature for September is 61.7 degrees. The highest temperature was 91 degrees on the 16th and the lowest, 35 degrees on the 19th. There have been no killing frosts at the thermometer shelter, although there have been frosts on low ground in Amherst. The total wind movement for the month was slightly higher than normal and the highest wind velocity was 32 miles per hour on the 15th. There were 218 hours of bright sunshine which is 17 hours more than normal.

Dr. J. K. Shaw of the Pomology Department gives the following report: "The weather during September has continued to be favorable for fruit development and ripening. Rainfall was rather deficient but not seriously so. Apples have sized up well where trees were not overloaded and are developing good color. No general frosts have occurred. The peach crop has been practically all harvested and was good on the few trees that survived the severe winters of a few years ago. Our Baldwin apple trees have not borne well since the cold winter of 1933-1934. Winter injury is probably responsible, at least in part, for the short crops."

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MASSACHUSETTS

AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 610 October 1939

Meteorological Observations

FOR

OCTOBER

1939

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 262.3 ft.

Height of wind instruments, 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. miles/hr*	Began	Ended	Rain	Snow
1	62	12 M	48	12 P	55.0	76	1.0	n	183	18	2 P	3 P	.03	
2	61	2 P	45	7 A	53.0	60	1.5	n	230	17			T	
3	54	1 P	48	12 P	51.0	75	0.0	n	193	13	9 A	5:30 P	.42	
4	69	4 P	48	12 P	58.5	77	6.5	n	123	10				
5	76	3 P	46	6 A	61.0	87	6.8	sw	44	7			T	
6	75	2 P	54	12 P	64.5	90	4.5	se	117	13	6 P	7 P	.50	
7	70	3 P	48	6 A	59.0	72	11.5	nw	116	14				
8	66	3 P	43	7 A	54.5	80	0.0	sw	53	10	11 P	12 P	.12	
9	78	2 P	56	7 A	67.0	77	5.0	nw	112	22	0 A	1 A	.08	
10	89	4 P	55	7 A	72.0	68	10.8	s	106	32				
11	68	0 A	45	12 P	56.5	63	6.0	nw	228	22				
12	58	3 P	40	4 A	49.0	78	0.5	sw	74	8				
13	64	4 P	40	7 A	52.0	62	11.0	w	93	13				
14	56	3 P	40	4 A	48.0	69	5.0	nw	184	32			T	
15	50	4 P	29	12 P	39.5	54	11.0	nw	227	20				
16	64	4 P	24	7 A	44.0	61	11.0	se	92	8				
17	56	12 M	32	7 A	44.0	74	3.3	nw	199	28				
18	48	4 P	26	6 A	37.0	47	10.0	nw	187	18				
19	68	3 P	32	0 A	50.0	64	7.8	se	228	18				
20	70	3 P	40	12 P	55.0	63	8.0	w	165	17				
21	75	4 P	34	7 A	54.5	77	3.8	s	98	20	9:30 P	12 P	.38	
22	64	3 P	42	12 P	53.0	86	0.0	s	145	28	0 A	11 A	.17	
23	49	1 P	34	12 P	41.5	58	3.0	nw	267	32				
24	44	4 P	28	7 A	36.0	47	10.5	nw	309	28				
25	52	3 P	24	6 A	38.0	65	5.5	s	113	11	9 P	12 P	.09	
26	55	4 P	45	0 A	50.0	95	0.0	n	52	5	0 A	8 A	.03	
27	53	12 P	46	7 A	49.5	97	0.0	s	54	7	8 A	12 P	.12	
28	64	8 A	34	12 P	49.0	73	4.7	w	275	39	0 A	9:30 A	.37	
29	47	3 P	26	12 P	36.5	56	10.3	nw	240	25				
30	45	4 P	23	5 A	34.0	87	0.0	nw	60	8	5 P	12 P	.49	
31	44	12 M	42	8 A	43.0	93	0.0	nw	225	18	0 A	12 P	1.75	

*Based on least time required to blow one mile.

F. W. WHITTEMORE, *Observer.*

MONTHLY SUMMARY

October 1939		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.41, 18th	30.53	30.68, 1929
Minimum	29.28, 31st	29.42	29.00, 1926
Mean semi-daily	30 018	30.06	
Range	1.13	1.11	1.47, 1926; .76, 1899
Air Temperature, in degrees F.			
Highest	89, 10th	79.4	90.5, 1908
Lowest	23, 30th	23.4	17, 1936
Mean	50.2	50.5	56.4, 1920; 43.2, 1890
Range	66	56.0	
Highest mean daily	72, 10th		
Lowest mean daily	34, 30th		
Mean maximum	61.1		
Mean minimum	39.3		
Greatest daily range	41, 21st		
Least daily range	2, 31st		
Precipitation, in inches			
Precipitation	4.55		8.81, 1911; .01, 1924
Snow			
Max. precipitation in 24 hrs.	1 75, 31st		
Number of days with 01 or more	13	9	15, 1913; 1, 1897, 1924
Wind. in miles			
Total movement	4792	4074	5,467, 1910; 2,540, 1894
Greatest daily movement	309, 24th		
Least daily movement	44. 5th		
Mean hourly velocity	6 4		
Maximum velocity	39, 28th	29 5	42, 1937
Wind. direction			
Prevailing direction	WNW	W	
North, days	5		
Northeast, days	0		
East, days	0		
Southeast, days	3		
South, days	5		
Southwest, days	3		
West, days	3		
Northwest, days	12		
Weather			
Mean relative humidity, percent	72.0	69 0	
Mean cloudiness, percent	47.0	48	67, 1932; 18, 1924
Number of clear days	9	10	21, 1938; 1, 1911
Number of fair days	10	10	17, 1924; 3, 1938
Number of cloudy days	12	11	19, 1896; 3, 1924
Number hours bright sunshine	159	175.0	232, '23, '38; 91, 1913
Percent of possible hours of bright sunshine	46.6	51.3	
Thunder and lightning	6th, 8th		
First Frost	Oct. 15	Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1938.

REMARKS

The weather during October was seasonable in most respects. The mean temperature for the month was 50.2 degrees, the normal being 50.5 degrees. The lowest temperature was 23 degrees on the 30th. The first frost of the season occurred on October 15 which is the latest date for first frost recorded at this station. The normal date for the first frost is September 21. The domestic heating load for October was 460 degree-days. This, together with 155 degree-days in September, makes the heating load for the two months 615 degree-days. The normal for this period is 604 degree-days.

There was a deficiency in rainfall during each of the summer and fall months, beginning with May. As a result many wells went dry and town water supplies were threatened. This shortage of water continued through October until the 25th. Only 1.70 inches of rain fell in October until that date. Rains during the last week brought the total for the month to 4.55 inches. The normal rainfall for October is 3.29 inches.

There were 159 hours of bright sunshine compared to a normal of 175 hours. The highest wind velocity was 39 miles per hour on the 28th.

Dr. J. K. Shaw of the Pomology Department makes the following comment: "The month of October marks the close of the 1939 season for fruits. The season has been generally favorable for the crops. The apple crop was very heavy, especially of McIntosh, and that of other fruits, fair to good. While the rainfall was deficient at times, causing some injury to shallow-rooted crops, fruits suffered but little from lack of water. There were no unseasonable spring or fall frosts. Hail caused damage in some orchards. The fruit grower should be well satisfied with the season of 1939, except in the very important matter of prices which are discouragingly low."

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AGRICULTURAL EXPERIMENT STATION

Meteorological Series | Bulletin No. 611 | November 1939

Meteorological Observations

FOR

NOVEMBER

1939

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 262.3 ft.

Height of wind instruments, 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. miles/hr*	Began	Ended	Rain	Snow
	Degrees	Time	Degrees	Time										
1	52	3 P	32	12 P	42.0	61	5.3	w	172	15				
2	54	4 P	27	7 A	40.5	81	5.0	nw	48	6				
3	46	3 P	27	12 P	36.5	67	2.0	nw	115	14				
4	50	2 P	23	7 A	36.5	72	10.2	nw	51	5				
5	38	8 P	28	5 A	33.0	96	0.0	n	147	25	1 P	12 P	.92	
6	46	11 A	35	10 P	40.5	74	4.5	nw	243	22	0 A	1 A	.01	
7	50	2 P	34	11 P	42.0	67	3.0	w	158	14				
8	55	2 P	36	1 A	45.5	65	0.5	w	165	25				
9	40	0 A	26	12 P	33.0	59	6.2	nw	321	40	9 A	10 A	.05	T
10	56	3 P	24	1 A	40.0	63	3.3	s	152	18				
11	51	3 A	37	12 P	44.0	57	6.0	w	343	39			T	
12	45	1 P	31	12 P	38.0	69	6.5	w	224	20				
13	40	11 A	23	12 P	31.5	69	4.5	nw	158	28				T
14	38	3 P	18	6 A	28.0	53	7.0	nw	300	32				
15	49	3 P	19	6 A	34.0	64	8.0	w	98	7				
16	61	3 P	22	7 A	41.5	63	4.0	w	81	25				
17	52	0 A	29	12 P	40.5	60	7.0	w	227	32				
18	56	3 P	23	6 A	39.5	82	3.0	w	48	14				
19	48	2 P	23	12 P	35.5	74	5.3	n	115	13				
20	39	2 P	21	7 A	30.0	72	5.5	ne	145	20				
21	35	3 P	26	8 A	30.5	67	0.0	n	191	20				
22	40	3 P	31	12 P	35.5	77	0.5	n	221	22				
23	46	3 P	26	7 A	36.0	73	9.5	n	66	15				
24	39	2 P	24	7 A	31.5	72	9.5	ne	156	20				
25	36	1 P	26	7 A	31.0	49	2.3	n	237	22				
26	46	3 P	24	6 A	35.0	40	9.4	nw	238	25				
27	48	2 P	28	0 A	38.0	53	8.5	nw	232	28				
28	54	2 P	32	8 A	43.0	69	8.4	nw	186	25				
29	48	1 P	26	7 A	37.0	76	9.0	sw	90	11				
30	43	3 P	26	8 A	34.5	91	4.1	sw	30	4				

*Based on least time required to blow one mile.

F. W. WHITTEMORE, *Observer.*

MONTHLY SUMMARY

November 1939		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.56, 4th	30.59	30.87, 1932
Minimum	29.44, 1st	29.30	28.73, 1904
Mean semi-daily	30.118	30.05	
Range	1.12	1.29	1.84, 1904; .94, 1905
Air Temperature, in degrees F.			
Highest	61, 16th	66.0	75, 1938
Lowest	18, 14th	12.9	−4, 1938
Mean	36.8	38.9	44.1, 1931; 33.6, 1901
Range	43	53.0	
Highest mean daily	45.5, 8th		
Lowest mean daily	28, 14th		
Mean maximum	46.7		
Mean minimum	26.9		
Greatest daily range	39, 16th		
Least daily range	9, 21st, 22nd		
Precipitation, in inches			
Precipitation	.98	3.41	8.64, 1927; .63, 1917
Snow	Trace	2.34	13.50, 1938
Max. precipitation in 24 hrs.	.93, 5th, 6th		
Number of days with .01 or more	3	9	22, 1921; 2, 1904
Wind, in miles			
Total movement	4958	4531	5,978, 1906; 2,589, 1889
Greatest daily movement	343, 11th		
Least daily movement	30, 30th		
Mean hourly velocity	6.9	6.3	
Maximum velocity	40, 9th	30.3	44, 1938
Wind, direction			
Prevailing direction	NW	WNW	
North, days	6		
Northeast, days	2		
East, days	0		
Southeast, days	0		
South, days	1		
Southwest, days	2		
West, days	9		
Northwest, days	10		
Weather			
Mean relative humidity, percent	67.8	70.6	
Mean cloudiness, percent	38	55.1	72, 1900, 1927; 34, 1917
Number of clear days	10	6	15, 1903; 1, 1900, 1911, 1927
Number of fair days	13	9	16, '12; 4, '89, '30, '32, '35
Number of cloudy days	7	15	24, 1927; 9, 1905, 1917
Number hours bright sunshine	158	121	182, 1903; 66, 1927
Percent of possible hours of bright sunshine	53.9	41.3	
Thunder and lightning			
First snow	Nov. 9	Nov. 6	Oct. 10, '25; Nov. 27, '31

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1938.

REMARKS

The outstanding features of November weather were the large amount of sunshine and the lack of precipitation. Only .98 inch of precipitation was recorded during the month, the normal for November being 3.41 inches. In the storm on the 5th, .93 inch of rain fell. This is the least precipitation ever recorded in November at this station, with the exception of November 1917, when .63 of an inch fell. No snow fell during the month, with the exception of a trace on the 9th and the 13th. The normal snowfall for November is 2.34 inches and the normal date for first snow is November 6. Last year 13.50 inches fell in November, which was the heaviest on record for November.

The mean temperature for the month was 36. 8 degrees, the normal being 38.9 degrees. The lowest temperature was 18 degrees on the 14th, compared with a normal minimum of 12.9 degrees for November.

The domestic heating load for November was 846 degree-days; the normal, 783 degree-days. The load for the heating season thus far is 1461 degree-days, while the normal for this period is 1387 degree-days.

There were 158 hours of bright sunshine, the normal for November being 128 hours. Only three other years since 1889 had more hours of sunshine in November, viz., 1936, 161 hours; 1917, 170. and 1903, 182.

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 612 December 1939

Meteorological Observations

FOR

DECEMBER

1939

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 262.3 ft.

Height of wind instruments, 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. miles/hr*	Began	Ended	Rain	Snow
	Degrees	Time	Degrees	Time										
1	53	2 P	19	7 A	36.0	74	9.3	w	42	5	11 P	12 P	·03	
2	53	12 P	37	2 A	45.0	100	0.0	w	35	9	3 A	12 P	1.46	
3	53	0 A	40	5 P	46.5	84	0.5	sw	170	22	1 A	5 P	.09	
4	43	0 A	33	7 P	38.0	66	0.0	nw	317	22				
5	40	1 P	30	5 A	35.0	55	3.0	nw	164	15				
6	42	12 M	27	11 P	34.5	74	1.0	sw	46	5				
7	45	1 P	27	6 A	36.0	86	0.5	s	220	22				
8	43	0 A	23	12 P	33.0	57	3.8	nw	473	39				T
9	36	3 P	21	4 A	28.5	68	1.3	se	290	22				
10	44	12 M	33	2 A	38.5	80	0.0	s	64	8	3.30 P	12 P	.23	
11	38	0 A	16	12 P	27.0	89	0.0	nw	258	28	0 A	2 P	.19	0.25
12	32	4 P	15	8 A	23.5	69	9.1	n	284	25				
13	37	2 P	17	4 A	27.0	83	0.0	s	70	9	11 A	10 P	.28	1.50
14	34	6 A	18	12 P	26.0	74	5.5	nw	163	20				
15	30	2 P	5	7 A	17.5	86	9.0	n	74	5				
16	40	12 M	13	0 A	26.5	73	1.2	s	143	14				
17	39	10 P	30	6 A	34.5	100	0.0	s	64	6	10 A	11 A	.11	
18	43	2 P	30	12 P	36.5	73	0.0	nw	140	17			T	
19	38	1 P	26	7 A	32.0	91	2.0	n	62	5				
20	38	6 P	32	6 A	35.0	100	0 0	n	135	14	0 A	6 P	1.23	
21	41	11 A	30	11 P	35.5	81	2.0	w	191	15				T
22	31	0 A	21	8 A	26.0	59	3 0	nw	375	28				T
23	31	12 M	16	12 P	23.5	56	9.0	nw	376	39				
24	26	3 P	12	6 A	19.0	68	9 0	w	256	25				
25	32	2 P	19	1 A	25.5	62	5 0	nw	253	32				T
26	26	2 P	8	12 P	17.0	54	9.0	nw	300	22				
27	19	3 P	1	7 A	10.0	67	0.0	n	167	18				
28	31	3 P	5	8 A	18.0	47	9.2	nw	144	13				
29	25	8 P	9	5 A	17.0	76	0.0	w	42	4				
30	35	2 P	16	12 P	25.5	97	5.6	nw	63	13	1 A	9 A	.27	3.00
31	33	2 P	14	11 P	23.5	84	2.0	s	138	17				

*Based on least time required to blow one mile.

F. W. WHITTEMORE, *Observer*.

MONTHLY SUMMARY

December 1939		Normal	Extremes
Barometer, in inches			
(Readings reduced to sea level)			
Maximum	30.45, 15th	30.66	30.96, 1889
Minimum	29.27, 7th, 8th	29.27	28 85, 1915
Mean semi-daily	29.831	30.06	
Range	1.18	1.38	1.78, 1895; 1.01, 1892
Air Temperature, in degrees F.			
Highest	53, 1st, 2nd, 3rd	54.3	65.5, 1908
Lowest	1, 27th	−1.9	− 22.5, 1917
Mean	28.9	27.5	36.9, 1891; 17.1, 1917
Range	52	56.2	
Highest mean daily	46.5, 3rd		
Lowest mean daily	10.0, 27th		
Mean maximum	37.1		
Mean minimum	20.7		
Greatest daily range	34, 1st		
Least daily range	6, 20th		
Precipitation, in inches			
Precipitation	3.89	3.39	7.77, 1901; .87, 1896
Snow	4.75	8.50	26.50, '02; t, 1891
Max. precipitation in 24 hrs.	1 48, 2nd, 3rd		
Number of days with 01 or more	9	10	17, 1902; 4, 1892
Wind, in miles			
Total movement	5519	4710	6,694, 1925; 3,239, 1918
Greatest daily movement	473, 8th		
Least daily movement	35. 2nd		
Mean hourly velocity	7 4	6.3	
Maximum velocity	39, 8th, 23rd	31.4	48, 1938
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	5		
Northeast, days	0		
East, days	0		
Southeast, days	1		
South, days	6		
Southwest, days	2		
West, days	5		
Northwest, days	12		
Weather			
Mean relative humidity, percent	75.3	69.4	
Mean cloudiness, percent	56	54.9	71, 1929; 39, 1919
Number of clear days	7	8	15, 1890; 2, 1922, 1933
Number of fair days	6	9	16, '09; 4, '89, '30, '31, '36, '38
Number of cloudy days	18	14	'23, '33; 7, '09, '23
Number hours bright sunshine	100	128	172, 1896; 63, 1933
Percent of possible hours of bright sunshine	35.3	45.2	

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1938.

ANNUAL SUMMARY

Annual 1939		Normal	Extremes
Barometer, in inches			
(Readings reduced to sea level)			
Maximum	30.68, Feb. 16 and 17	30.81	31.05, 1920
Minimum	29.20, Jan. 22	28.95	28.41, 1938
Mean semi-daily	30.004	30.01	
Range	1.48	1.85	2.47, 1938; 1.38, 1933
Air Temperature, in degrees F.			
Highest	93, July 7 and 8	95.7	104, 1911
Lowest	−4, Jan. 27	−12.2	−26, 1904
Mean	48.0	47.4	49.8, 1921; 44, 1904
Range	97	107.8	
Highest mean daily	81, July 7, Aug. 21		
Lowest mean daily	8, Jan. 26		
Mean maximum	58.0	57.8	
Mean minimum	37.7	36.5	
Greatest daily range	45, May 19		
Least daily range	2, Oct. 31		
Precipitation, in inches			
Precipitation	38.82	43.70	59.00, 1938; 30.68 1908
Snow	37.50	47.78	89.00, 1893; 24.50, 1919
Max. precipitation in 24 hrs.	2.23, Aug. 3, 4		
Number of days with .01 or more	110	124	144, 1902; 96, 1924
Wind, in miles			
Total movement	51,734	52,223	63,571, 1908; 36,257, 1894
Greatest daily movement	478, Mar. 7		
Least daily movement	25 Jan. 16		
Mean hourly velocity	5.9	5.8	
Max. velocity, 48, Feb.4.16, Mar.7, June17		39.5	80,1938
Wind, direction			
Prevailing direction	WNW	W	
North, days	71		
Northeast, days	7		
East, days	3		
Southeast, days	35		
South, days	63		
Southwest, days	33		
West, days	45		
Northwest, days	108		
Weather			
Mean relative humidity, percent	69.8	67.6	
Mean cloudiness, percent	54	51.7	60, '98, '01, '02; 41, '08, '24
Number of clear days	155	116	169, 1936; 59, 1927
Number of fair days	123	123	182, 1912; 64, 1936
Number of cloudy days	87	126	179, '01, '02; 71, 1910
Number hours bright sunshine	2511	2353	2838, 1924; 1864, 1902
Percent of possible hours of bright sunshine	56.4	52.8	
Last frost	May 16	May 14	Apr. 23, '04; June 8, '32
First frost	Oct. 15	Sept. 21	Aug. 22, '94, '95; Oct. 13,'09
Last snow	April 9	Apr. 15	Mar. 14, '10; May 11, '07
First snow	Nov. 9	Nov. 6	Oct. 10, '25; Nov. 27, '31

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1938

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MASSACHUSETTS
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Meteorological Series — Bulletin No. 613 — January 1940

Meteorological Observations

FOR

JANUARY

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C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.

Height of barometer above ground, 36 ft. Above sea level, 262.3 ft.

Height of wind instruments, 67 ft. Time used, 75th Mer.

Requests for bulletins should be addressed to the
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DAILY RECORDS

Day	Temperature					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. miles/hr*	Began	Ended	Rain	Snow
1	25	2 P	7	8 A	16.0	67	9.1	sw	152	12				
2	21	11 A	11	4 A	16.0	69	7.0	nw	207	25				
3	31	2 P	18	0 A	24.5	62	8.5	nw	307	22				
4	26	2 P	8	12 P	17.0	50	9 2	nw	233	28				
5	22	1 P	3	4 A	12.5	81	1.0	nw	39	7	1.30 P	8 P	.07	1.00
6	28	3 P	11	12 P	19.5	74	8.0	nw	294	28				
7	25	3 P	3	7 A	14.0	62	8.0	nw	156	9				
8	19	3 P	12	0 A	15.5	96	0.0	nw	146	11	7.30 A	8 P	.05	0.50
9	32	4 P	5	12 P	18.5	68	9.3	nw	145	11				
10	28	3 P	–3	6 A	12.5	78	5.6	sw	33	3				
11	31	3 P	–1	7 A	15.0	89	5.0	w	33	3				T
12	30	3 P	22	0 A	26.0	100	0.0	nw	50	4	3 A	12 P	.31	3.50
13	35	6 P	29	0 A	32.0	97	0.0	n	82	5	0 A	8 A	.05	0.50
14	37	2 P	33	7 A	35.0	88	0.0	se	165	15	3 P	12 P	.89	T
15	42	6 A	32	11 P	37.0	95	0.0	nw	176	18	0 A	10 A	1.22	T
16	31	1 A	11	12 P	21.0	58	7.5	nw	368	28				T
17	15	4 P	3	7 A	9.0	63	9.4	nw	263	18				T
18	18	8 P	4	7 A	11.0	67	0 5	sw	175	10				
19	18	0 A	4	12 P	11.0	77	6.2	n	192	14	6 A	10 A	.04	0.25
20	22	2 P	0	7 A	11 0	86	4.0	s	72	11				
21	33	2 P	9	7 A	21.0	73	4.5	sw	152	17				T
22	30	3 P	14	12 P	22.0	69	3 8	sw	221	25				
23	28	4 P	2	8 A	15.0	57	9.0	nw	110	14				
24	22	6 P	13	4 A	17.5	71	0 8	n	268	20				
25	26	1 P	17	8 A	21.5	72	5 0	nw	122	22				T
26	22	2 P	10	12 P	16.0	67	5.0	w	256	32				
27	21	2 P	4	8 A	12.5	74	9.6	nw	182	18				
82	25	2 P	9	7 A	17.0	71	9.8	nw	215	39				
92	32	2 P	4	8 A	18.0	73	9 8	nw	81	13				
30	32	4 P	4	8 A	18.0	86	5.5	nw	49	5				
31	34	4 P	7	8 A	20.5	78	9.9	nw	147	28				

*Based on least time required to blow one mile.

F. W. Whittemore, *Observer.*

MONTHLY SUMMARY

January 1940		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.53, 10th	30.70	31.00, 1927
Minimum	29.53, 1st, 2nd	29.20	28.55, 1913
Mean semi-daily	29.992	30.07	
Range	1.00	1.50	2.18, 1913; 0.97, 1896
Air Temperature, in degrees F.			
Highest	42, 15th	51.1	66.0, 1932
Lowest	−3, 10th	−7.1	−26.0, 1904
Mean	18.5	24.2	34.2, 1913; 13.9, 1918
Range	45	58.2	
Highest mean daily	37, 15th		
Lowest mean daily	9, 17th		
Mean maximum	27.1		
Mean minimum	9.8		
Greatest daily range	32, 11th		
Least daily range	4, 14th		
Precipitation, in inches			
Precipitation	2.63	3.61	7.15, 1898; 1.07, 1896
Snow	5.75	13.24	33,1898, 1923; 1.50, '08
Max. precipitation in 24 hrs.	2.11, 14th, 15th		
Number of days with .01 or more	7	11	15, '93, '20; 4, 1901
Wind. in miles			
Total movement	5091	5055	7770, 1908; 2896, 1895
Greatest daily movement	368, 16th		
Least daily movement	33, 10th, 11th		
Mean hourly velocity	6.8	6.8	
Maximum velocity	39, 28th	32.7	47, 1938
Wind. direction			
Prevailing direction	WNW	WNW	
North, days	3		
Northeast, days	0		
East, days	0		
Southeast, days	1		
South, days	1		
Southwest, days	5		
West, days	2		
Northwest, days	19		
Weather			
Mean relative humidity, percent	74.8	70.1	
Mean cloudiness, percent	42	55	78, 1932; 37, 1908
Number of clear days	14	9	17, 1939; 2, 1914
Number of fair days	9	9	18, 1890, 1926; 3, 1916
Number of cloudy days	8	13	22, 1923, 1931; 4, 1920, 1939
Number hours bright sunshine	171	137	214, 1920; 74, 1932
Percent of possible hours of bright sunshine	58.2	46.7	

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1939

REMARKS

The weather during January was featured by the continued cold spell which began the last week in December. January was the coldest since 1920, with a mean temperature of 18.5 degrees compared to 15.2 degrees in 1920. The highest temperature was 42 degrees on the 15th, compared to a normal high for January of 51.1 degrees. The lowest temperature was -3 degrees on the 10th, compared to a normal low of -7.1 for January. The mean maximum temperature for the month was 27.1 degrees and the mean minimum, 9.8. Only one other day, the 11th, was below zero with a reading of −1: but only 5 days were above 32 degrees. While January was cold, it had a total of 171 hours of sunshine compared to the normal of 137 hours. This is the highest number of hours recorded in the month of January since 1924. The domestic heating load for the season to the end of January is now 4021 degree-days, whereas the normal number of degree-days for this period is 3814, giving an excess of about 5 percent. The total precipitation for the month was 2.63 inches. The normal for January is 3.61 inches. A total of 5.75 inches of snow fell during the month, compared to the normal of 13.24 inches. The total wind movement for the month was 5091 miles, the normal being 5055 miles.

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AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 614 February 1940

Meteorological Observations

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FEBRUARY
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C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.

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AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	No. Hours of Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. miles/hr*	Began	Ended	Rain	Snow
1	34	1 P	10	7 A	22.0	88	5.8	w	81	7				
2	30	4 P	17	12 P	23.5	79	6.0	n	204	22				T
3	31	4 P	11	5 A	21.0	67	8.5	nw	257	28				
4	33	2 P	13	7 A	23.0	71	9.1	nw	130	11				
5	40	3 P	20	8 A	30.0	87	5.3	w	34	3				
6	37	2 P	19	3 A	28.0	93	2.0	w	76	13	2 P	12 P	.38	T
7	39	12 M	34	6 A	36.5	75	1.0	nw	188	25	0 A	3 A	.02	
8	40	4 P	27	8 A	33.5	60	8.0	nw	212	22				
9	38	3 P	29	12 P	33.5	60	7.0	nw	128	17				
10	32	12 P	24	8 A	28.0	100	0.0	nw	83	9	3 A	12 P	.51	2.5
11	41	12 M	32	0 A	36.5	80	3.1	n	201	32	0 A	7 A	.22	
12	46	3 P	32	4 A	39.0	70	5.7	s	187	18				
13	3	4 A	25	12 P	32.0	68	0.0	n	174	17				
14	25	11 A	19	7 A	22.0	100	0.0	n	263	40	5 A	10 P	1.01	9.0
15	33	2 P	20	12 P	26.5	76	9.0	n	572	39				
16	31	3 P	16	8 A	23.5	76	10.6	nw	359	25				
17	42	4 P	15	7 A	28.5	77	10.6	nw	198	18				
18	41	3 P	18	7 A	29.5	85	5.0	w	91	9				
19	35	10 A	32	4 A	33.5	100	0.0	n	146	18	8 A	12 P	.37	2.5
20	35	4 P	31	6 A	33 0	96	0.0	n	315	22	0 A	2 P	.14	1.0
21	33	0 A	20	12 P	26.5	70	9.0	n	483	32	0 A	2 A	.02	T
22	37	3 P	10	8 A	23.5	55	10.9	nw	153	18				
23	34	3 P	1	7 A	17.5	75	6 5	w	146	28				
24	31	12 P	15	7 A	23.0	79	0 5	s	134	11	8 P	12 P	.05	0.5
25	35	4 A	17	12 P	26.0	77	4 4	nw	200	20				
26	26	3 P	9	7 A	17.5	61	11.0	n	233	20				
27	21	1 P	-6	7 A	7.5	77	6.0	nw	66	8				T
28	35	4 P	17	12 P	26.0	85	5.0	nw	98	9				T
29	38	4 P	7	7 A	22.5	69	11.0	w	47	5				

*Based on least time required to blow one mile.

F. W. WHITTEMORE, *Observer.*

MONTHLY SUMMARY

February 1940		Normal	Extremes
Barometer, in inches			
(Readings reduced to sea level)			
Maximum	30.46, 18th	30.63	31.05, 1920
Minimum	29.07, 14th	29.24	28.56, 1895
Mean semi-daily	29.941	30.04	
Range	1.39	1.38	1.89, '00, '08; .88, '13, '31
Air Temperature, in degrees F.			
Highest	46, 12th	50.5	65.0, 1930
Lowest	−6, 27th	−7.4	−22.5, 1918
Mean	26.7	23.7	
Range	52	58	
Highest mean daily	39, 12th		
Lowest mean daily	7.5, 27th		
Mean maximum	34.9	32.8	
Mean minimum	18.4	14.5	
Greatest daily range	33, 23rd		
Least daily range	3, 19th		
Precipitation, in inches			
Precipitation	2.72	3.19	8.12, 1900; 0.62, 1901
Snow	15.5	13.99	48.75, 1893; 0.50, 1937
Max. precipitation in 24 hrs.	1.01, 14th		
Number of days with .01 or more	9	10	15, '93, '20; 4, 1901
Wind. in miles			
Total movement	5459	4776	6445, 1896; 3438, 1892
Greatest daily movement	572, 15th		
Least daily movement	34, 5th		
Mean hourly velocity	7.8	7.1	
Maximum velocity	40, 14th	31.7	48, 1934, 1937
Wind, direction			
Prevailing direction	NW	WNW	
North, days	9		
Northeast, days	0		
East, days	0		
Southeast, days	0		
South, days	2		
Southwest, days	0		
West, days	6		
Northwest, days	12		
Weather			
Mean relative humidity, percent	77.8	66.6	
Mean cloudiness, percent	54	50.9	66, '90, 27; 31, 1905
Number of clear days	10	10	17, '19, '24; 2, 1927
Number of fair days	10	8	16, 1920; 2, 1936
Number of cloudy days	9	10	16, 1894; 2, 1920
Number hours bright sunshine	161	158	221, 1924; 110, '27, '38
Percent of possible hours of bright sunshine	54.4	53.4	

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1939

REMARKS

The month of February was warmer than normal and was marked by a severe blizzard on the 14th when 9 inches of snow fell and much drifting was caused by high winds. In the Boston area and other eastern parts of the state 14 inches of snow fell which drifted badly and caused serious traffic tie-ups.

The mean temperature was 26.7 degrees, while the normal is 23.7 degrees. The maximum temperature of 46 degrees occurred on the 12th and the minimum was −6 degrees on the 27th. The normal maximum temperature for February is 50.5 degrees and the normal minimum temperature, −7.4 degrees. The total precipitation of 2.72 inches was under the normal of 3.19 inches. A total of 15.50 inches of snow fell as compared to the normal of 13.99 inches. The heating load for the month was 1112 degree-days. The normal load for February is 1156 degree-days. The heating load thus far is 5133 degree-days; and the normal load for this same period is 4970 degree-days. The total wind movement was 5459 miles. The normal for February is 4776 miles. This marks the largest wind travel for February since 1933 when 6029 miles were recorded. February 1918 had 5632 miles of wind travel. The maximum wind velocity of 40 miles per hour was recorded on the 14th, the day of the blizzard. A total of 161 hours of bright sunshine was slightly higher than the February normal of 158 hours.

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MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 615 March 1940

Meteorological Observations

FOR

MARCH

1940

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Heights of wind instruments, 67 ft. Time used E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

MONTHLY WEATHER SUMMARY

Day	Temperature					Humidity	Sunshine	Wind			Precipitation			
	Maximum	Time	Minimum	Time	Mean			Direction	Movement	Maximum	Began	Ended	Water	Snow
1	33	2 P	18	12 P	25.5	63	6.5	n	127	14				T
2	35	4 P	5	6 A	20.0	64	11.2	w	80	7				
3	36	5 P	29	7 A	32.5	87	0.0	w	55	5	5 P	12 P	.21	.50
4	33	0 A	29	12 P	31.0	91	0.0	n	147	15	0 A	12 P	1.37	3.00
5	38	5 P	28	3 A	33.0	94	2.2	nw	194	13	0 A	8 A	.44	1.00
6	39	4 P	31	12 P	35.0	89	0.0	sw	97	8	3 A	8 A	.05	.50
7	39	1 P	28	7 A	33.5	82	5.3	w	133	15	3 A	8 A	.02	.25
8	40	1 P	26	7 A	33.0	73	8.0	w	85	11				T
9	43	1 A	22	6 A	32.5	75	8.5	nw	190	18				
10	30	12 M	19	12 P	24.5	66	10.0	nw	326	28				
11	26	2 P	14	7 A	20.0	64	11.6	nw	384	32				
12	31	4 P	11	7 A	21.0	57	11.6	n	346	28				
13	41	4 P	13	7 A	27.0	61	11.6	n	140	15				
14	41	3 P	17	7 A	29.0	72	3.3	w	49	15	9:30 P	12 P	.06	
15	41	9 A	29	12 P	35.0	86	0.0	nw	270	20	0 A	11 A	1.42	T
16	34	3 P	24	6 A	29.0	77	5.5	sw	195	15				
17	37	3 P	25	6 A	31.0	61	8.0	w	156	17	0 A	2 A	.03	.25
18	39	4 P	20	6 A	29.5	73	7.5	nw	103	8				
19	47	4 P	30	4 A	38.5	88	6.5	nw	123	15	2:30 A	8 A	.18	
20	45	3 P	27	7 A	36.0	71	8.5	s	193	18	8 P	10 P	.05	
21	37	4 P	23	12 P	30.0	60	10.3	nw	226	25				
22	36	1 P	19	12 P	27.5	85	2.0	w	150	28	5 A	1 P	.34	3.50
23	22	4 P	11	6 A	16.5	51	11.5	nw	354	32				
24	24	3 P	10	5 A	17.0	57	10.5	nw	337	22				
25	28	2 P	15	6 A	21.5	57	8.4	nw	255	28				
26	39	4 P	23	1 A	31.0	62	12.3	nw	263	20				
27	34	4 P	25	3 A	29.5	79	0.5	sw	131	9				T
28	46	4 P	28	7 A	37.0	65	12.3	n	87	11				
29	44	4 P	32	6 A	38.0	96	0.0	s	71	8			T	
30	43	11 P	36	4 A	39.5	100	0.0	nw	50	6	0 A	12 P	1.23	
31	59	3 P	38	12 P	48.5	75	5.4	w	176	28	0 A	2 A	.18	

*Based on least time required to blow one mile.

F. W. Whittemore, *Observer*

MONTHLY SUMMARY

March 1940		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.59, 2nd	30.57	30.96, 1904
Minimum	29.39, 31st	29.24	28.47, 1914
Mean semi-daily	29.925	30.00	
Range	1.20	1.34	2.10, 1914; 0.85, 1915
Air Temperature, in degrees F.			
Highest	59, 31st	63.8	79.5, 1907, 1921
Lowest	5, 2nd	6.1	−7.5, 1906
Mean	30.1	34.4	
Range	54	57.6	
Highest mean daily	48.5, 31st		
Lowest mean daily	16.5, 23rd		
Mean maximum	37.4	43.2	
Mean minimum	22.7	25.4	
Greatest daily range	30, 2nd		
Least daily range	4, 4th		
Precipitation, in inches			
Precipitation	5.58	3.70	7.13, 1899; 0.12, 1915
Snow	9.00	7.47	27, 1899; 0, 1921
Maximum precipitation in 24 hrs.	1.48, 15th, 16th		
Number of days with .01 or more	13	11	17, 1890, 1913, 1936; 3, 1915
Wind, in miles			
Total movement	5493	5944	8182, 1896; 3006, 1905
Greatest daily movement	384, 11th		
Least daily movement	49, 14th		
Mean velocity	7.4	7.7	
Maximum velocity	32, 11th, 23rd	31.2	48, 1932, 1939
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	5		
Northeast, days	0		
East, days	0		
Southeast, days	0		
South, days	2		
Southwest, days	3		
West, days	8		
Northwest, days	13		
Weather			
Mean relative humidity, percent	73.6	64.2	
Mean cloudiness, percent	54.4	51.8	
Number of clear days	13	11	22, 1924; 3, 1901
Number of fair days	8	10	17, 1900; 4, 1895, 1897, 1936
Number of cloudy days	10	10	21, 1901; 1, 1915
Number hours bright sunshine	199	199	292, 1924; 93, 1901
Percent of possible hours of bright sunshine	53.6	53.6	
Thunder and lightning			

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1939.

REMARKS

March was much colder than normal, with more rain and snow than usual. The only warm, pleasant day was the last day of the month.

The mean temperature for the month was 30.1 degrees, compared to the normal of 34.4 degrees for March. This was the coldest March since 1926 when the mean temperature was 29.4 degrees. Last year the mean temperature for March was 30.9 degrees, with the month almost identical in character with March of this year.

The highest temperature was 59 degrees on the 31st and the lowest, 5 on the 2nd.

The mean temperature for the winter months December through March was 26 degrees compared to a normal of 27.5 degrees for this same period. The lowest temperature recorded during the winter was –6 on February 27.

The domestic heating load for March was 1082 degree-days, compared to the normal load of 949 degree-days. The total load for the months September through March is 6215 degree-days, while the normal for this same period is 5919 degree-days.

The total precipitation was 5.58 inches, while the normal for March is 3.70 inches. The snowfall for the month was 9.00 inches, compared to the normal of 7.47 inches. The total snowfall for the season thus far is 35.00 inches; the normal for this period is 45.54 inches.

The total hours of sunshine were 199, which is the normal for March. The wind velocity was 5493 miles for the month, compared to the normal of 5944 miles.

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 616 April 1940

Meteorological Observations

FOR

APRIL

1940

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

MONTHLY WEATHER SUMMARY

	Temperature							Wind			Precipitation			
Day	Maximum	Time	Minimum	Time	Mean	Humidity	Sunshine	Direction	Movement	Maximum	Began	Ended	Water	Snow
1	47	1 P	34	12 P	40.5	67	10.3	nw	390	32				
2	52	4 P	27	6 A	39.5	59	12.7	w	122	15				
3	52	3 P	29	6 A	40.5	61	9.0	nw	90	13	10 P	12 P	.05	
4	42	4 P	32	8 A	37.0	100	0.0	nw	82	8	0 A	12 P	.66	
5	49	2 P	33	11 P	41.0	67	6.5	nw	256	28	0 A	1 A	.07	
6	51	2 P	30	4 A	40.5	59	12.9	nw	339	40				
7	55	3 P	34	3 A	44.5	44	13.0	nw	185	17				
8	47	2 P	36	3 A	41.5	87	0.0	se	97	15	8 A	12 P	.83	
9	58	2 P	41	6 A	49.5	85	2.6	nw	156	22	0 A	4 A	.51	
10	55	3 P	33	12 P	44.0	47	13.1	nw	269	20				
11	62	2 P	27	5 A	44.5	51	11.3	s	143	17				
12	53	3 P	33	12 P	43.0	94	0.0	s	220	18	4 A	12 P	1.33	.50
13	33	4 P	24	12 P	28.5	60	8.4	nw	374	32	0 A	8 A	.32	2.00
14	40	2 P	20	5 A	30.0	50	11.0	sw	180	15				
15	53	2 P	23	6 A	38.0	55	10.5	s	146	15				
16	46	4 P	40	1 A	43.0	95	0.0	se	131	8	8 A	8 P	.05	
17	58	2 P	41	6 A	49.5	76	4.5	e	129	17				
18	43	0 A	37	7 A	40.0	94	0.0	n	78	8	3 A	8 P	.74	
19	50	1 P	37	3 A	43.5	55	9.5	nw	157	17				
20	42	11 A	37	12 P	39.5	89	0.0	ne	158	15	7 A	8 P	.85	
21	39	12 M	32	12 P	35.5	82	0.0	n	288	22	0 A	12 P	.22	1.50
22	38	2 P	32	2 A	35.0	90	0.0	n	349	25	0 A	8 P	.66	2.50
23	49	2 P	34	4 A	41.5	69	6.5	n	311	25				
24	51	2 P	37	5 A	44.0	63	1.5	n	79	9	8 P	12 P	.03	
25	57	3 P	33	12 P	45.0	71	6.5	n	97	25	8 A	8 P	.05	
26	60	1 P	30	5 A	45.0	60	9.5	n	106	15			T	
27	58	3 P	32	5 A	45.0	56	9.8	e	138	25			T	
28	64	4 P	31	3 A	47.5	40	13.8	n	173	18				
29	71	4 P	31	5 A	51.0	46	14.0	s	90	9				
30	74	2 P	39	5 A	56.5	48	10.1	se	164	17				

*Based on least time required to blow one mile.

F. W. WHITTEMORE, *Observer*

MONTHLY SUMMARY

April 1940		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.38, 29th	30.48	30.71, 1911
Minimum	29.40, 22nd	29.38	28.99, 1907, 1929
Mean semi-daily	29.951	29.99	
Range	0.98	1.11	1.52, 1930; .72, 1919
Air Temperature, in degrees F.			
Highest	74, 30th	79.4	88.5, 1896
Lowest	20, 14th	22.0	8.5, 1923
Mean	42.1	45.7	52, 1921; 41.2, 1926
Range	54	57.4	
Highest mean daily	56.5		
Lowest mean daily	28.5, 13th		
Mean maximum	51.6	56.8	
Mean minimum	32.6	34.8	
Greatest daily range	40, 29th		
Least daily range	5, 20th		
Precipitation, in inches			
Precipitation	6.37	3.35	6.89, 1929; .76, 1892
Snow	6.50	2.17	11, 1891; 0, 1910, 1934
Maximum precipitation in 24 hrs.	1.66, 12th, 13th		
Number of days with .01 or more	14	11	18, 1909, 3, 1892
Wind, in miles			
Total movement	5497	5404	8208, 1908; 3853, 1917
Greatest daily movement	390, 1st		
Least daily movement	78, 18th		
Mean hourly velocity	7.6	7.5	
Maximum velocity	40, 6th	31.4	40, 1935, 1938
Wind, direction			
Prevailing direction	NNW	WNW	
North, days	8		
Northeast, days	1		
East, days	2		
Southeast, days	3		
South, days	4		
Southwest, days	1		
West, days	1		
Northwest, days	10		
Weather			
Mean relative humidity, percent	67.3	61.6	
Mean cloudiness, percent	52	51.8	75, 1901; 34, 1925, 1927
Number of clear days	13	11	19, 1911; 3, 1898, 1902
Number of fair days	7	9	18, 1915; 2, 1894, 1901
Number of cloudy days	10	10	22, 1901; 3, 1899, 1924
Number hours bright sunshine	207	220	296, 1911; 103, 1901
Percent of possible hours of bright sunshine	51.5	54.7	
Thunder and lightning			
Last snow	Apr. 22	Apr. 15	Mar. 14, 1910; May 11, 1907

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1939.

REMARKS

The past month was one of the coldest and wettest Aprils on record at this station.

The mean temperature for the month was 42.1 degrees, compared to the normal of 45.7 degrees. It was colder than this only twice since 1889, the year the station was first established, viz., 41.2 in 1926 and 41.7 in 1907. In 1917 it was also 42.1 degrees. The highest temperature was 74 on the last day of the month, and the lowest, 20 on the 14th. The lateness of the season was indicated by the fact that the winter ice on the college pond remained until the 10th.

The domestic heating load for the month was 686 degree-days, while the normal for April is 579 degree-days. The total heating load for the season thus far is 6902 degree-days, compared to the normal of 6498 for this period.

The precipitation for the month totaled 6.37 inches, the normal being 3.35 inches. This is the heaviest for April since 1929 and was exceeded only three times in the past 50 years. A total of 6.50 inches of snow fell, compared to the normal of 2.00 inches for April. The snow fell in two storms; the last one totalling 4 inches occurred on April 21 and 22. This is the heaviest snowfall on record at such a late date. The total snowfall for the season was 41.50 inches compared to the normal seasonal fall of 47.71 inches.

The sunshine and wind travel for the month were very nearly normal.

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MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 617 May 1940

Meteorological Observations

FOR

MAY

1940

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

MONTHLY WEATHER SUMMARY

	Temperature							Wind			Precipitation			
Day	Maximum	Time	Minimum	Time	Mean	Humidity	Sunshine	Direction	Movement	Maximum	Began	Ended	Water	Snow
1	71	3 P	43	6 A	57.0	68	6.5	s	75	20			T	
2	62	2 P	55	6 A	58.5	91	0.0	se	226	17	0 A	12 P	.54	
3	70	4 P	53	12 P	61.5	79	2.0	s	184	10	0 A	8 A	.40	
4	54	8 A	49	10 P	51.5	91	0.0	n	140	17	8 A	7 P	.95	
5	68	6 P	48	2 A	58.0	56	13.0	n	175	15				
6	70	2 P	40	5 A	55.0	47	8.3	s	115	11				
7	69	4 P	49	5 A	59.0	40	13.6	nw	314	40				
8	69	4 P	43	5 A	56.0	42	11.6	nw	94	10				
9	68	3 P	45	5 A	56.5	39	11.3	n	134	18				
10	67	4 P	34	5 A	50.5	47	14.4	n	112	11				
11	78	2 P	36	5 A	57.0	61	6.0	sw	92	20				
12	63	5 P	40	12 P	51.5	51	8.5	nw	207	14				
13	69	3 P	33	6 A	51.0	54	9.3	nw	66	10				
14	67	6 P	43	6 A	55.0	69	2.2	sw	38	4				
15	82	3 P	48	5 A	65.0	57	13.0	e	131	17				
16	67	5 P	51	5 A	59.0	93	0.0	s	114	18	7 P	8 P	.13	
17	68	2 P	48	12 P	58.0	80	1.5	se	246	18	0 A	8 A	.51	
18	63	4 P	43	4 A	53.0	70	5.5	nw	65	20			T	
19	75	5 P	41	6 A	58.0	58	14.0	sw	95	9				
20	77	5 P	56	5 A	66.5	84	4.4	s	141	14			T	
21	70	4 P	55	8 A	62.5	88	2.0	se	107	20	2 A	5 P	.10	
22	68	4 P	54	12 P	61.0	79	1.5	e	94	9	1 A	12 P	.04	
23	54	0 A	49	9 P	51.5	90	0.0	ne	173	14	0 A	1 P	.29	
24	60	1 P	50	0 A	55.0	82	0.2	ne	167	13			T	
25	62	1 P	50	4 A	56.0	83	0.3	ne	130	8			T	
26	65	5 P	51	3 A	58.0	85	0.1	ne	131	7			T	
27	76	5 P	56	6 A	66.0	83	8.3	s	87	11	0 A	4 A	.05	
28	68	4 P	54	12 P	61.0	91	1.0	s	71	15	11:30 A	1 P	.04	
29	66	4 P	49	5 A	57.5	69	8.5	e	145	11	3 A	4 A	.04	
30	75	4 P	38	5 A	56.5	58	15.0	se	76	10				
31	57	7 P	45	3 A	51.0	95	0.0	nw	96	11	5:30 A	9 P	2.58	

*Based on least time required to blow one mile.

F. W. Whittemore, *Observer*

MONTHLY SUMMARY

May 1940		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.27, 30th	30.39	30.62, 1936
Minimum	29.49, 3rd	29.51	29.10, 1938
Mean semi-daily	29.913	29.96	
Range	0.78	0.88	
Air Temperature, in degrees F.			
Highest	82, 15th	86.1	94.5, 1896, 1911
Lowest	33, 13th	31.2	24.0, 1900
Mean	57.2	57.1	
Range	49	54.9	
Highest mean daily	66.5, 20th		
Lowest mean daily	50.5, 10th		
Mean maximum	67.7		
Mean minimum	46.7		
Greatest daily range	42, 11th		
Least daily range	5, 4th, 23rd		
Precipitation, in inches			
Precipitation	5.67	3.60	7.44, 1931; .48, 1903
Maximum precipitation in 24 hrs.	2.58, 31st		
Number of days with .01 or more	12	12	20, 1901; 5, 1903
Wind, in miles			
Total movement	4041	4504	5946, 1907; 2180, 1894
Greatest daily movement	314, 7th		
Least daily movement	38, 14th		
Mean hourly velocity	5.4	6.1	
Maximum velocity	40, 7th	28.8	45, 1935
Wind, direction			
Prevailing direction	ESE	W	
North, days	4		
Northeast, days	4		
East, days	3		
Southeast, days	4		
South, days	7		
Southwest, days	3		
West, days	0		
Northwest, days	6		
Weather			
Mean relative humidity, percent	70.3	60.7	
Mean cloudiness, percent	70	52.1	70, 1901; 30, 1923
Number of clear days	8	11	20, 1923; 0, 1927
Number of fair days	8	11	17, 1907, 1926; 5, 1923
Number of cloudy days	15	9	20, 1927; 3, 1903, 1922
Number hours bright sunshine	182	252	334, 1922; 137, 1927
Percent of possible hours of bright sunshine	40	55.6	
Thunder and lightning	3rd		
Last frost	May 13	May 14	June 8, 1932; Apr. 23, 1904

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1939.

REMARKS

The weather during May was marked with rain above normal and less sunshine than usual. The total rainfall for the month was 5.67 inches. The rainfall during the storm on the 31st was 2.58 inches. The normal rainfall for May is 3.60 inches. This makes a total rainfall of 17.62 inches for March, April and May. This has been exceeded only once in the 50-year history of the station. In 1901 there was a total rainfall of 18.52 inches in these three spring months. There were only 182 hours of bright sunshine compared to the normal of 252 hours. Most of the deficiency occurred in the latter half of the month. Only three times during the last 50 years has there been less sunshine in May than the past month. In 1927 there were 137 hours; in 1916, 181; and in 1901, 159. The temperature for the month was nearly normal with a mean of 57.2 degrees. The normal mean temperature for May is 57.1 degrees. There were no heavy frosts, the lowest temperature being 33 degrees on the 13th. The highest temperature was 82 degrees on the 15th. The domestic heating load was 242 degree-days, the normal being 245 degree-days. The total heating load for the season is now 7143 degree-days, the normal for this period being 6743 degree-days.

Dr. J. K. Shaw of the Pomology Department makes the following report: "Although the past winter was a severe one, fruit plants came through with little injury. Peach fruit buds survived and the bloom was abundant. Raspberry canes suffered much less injury than in the previous winter. Apple varieties blossomed moderately or heavily, especially considering the heavy crop of last year which might be expected to limit fruit bud formation. Quite likely the dry sunny weather of last June favored fruit bud formation. The season of bloom was nearly a week later than the average and, because of much cold, cloudy weather, was much prolonged. There were a few sunny days favorable to bee flight and pollination. It cannot yet be said how well apples have set. The abundance of wet weather during the early season of growth favored scab infection and made scab control difficult."

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 618 June 1940

Meteorological Observations

FOR

JUNE

1940

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

MONTHLY WEATHER SUMMARY

Day	Temperature					Humidity	Sunshine	Wind			Precipitation			
	Maximum	Time	Minimum	Time	Mean			Direction	Movement	Maximum	Began	Ended	Water	Snow
1	79	4 P	56	5 A	67.5	80	10.2	sw	85	9				
2	79	3 P	59	12 P	69.0	68	14.0	w	106	10				
3	85	4 P	53	5 A	69.0	63	15.1	nw	83	13				
4	89	2 P	61	5 A	75.0	69	12.5	w	77	8				
5	89	4 P	63	6 A	76.0	70	11.5	sw	79	11			T	
6	82	5 P	59	12 P	70.5	53	15.2	nw	269	28				
7	86	6 P	49	7 A	67.5	66	15.2	n	118	13				
8	75	4 P	56	6 A	65.5	63	7.7	se	153	13				
9	80	1 P	59	12 P	69.5	89	3.4	s	107	22	7 A	6 P	.10	
10	57	3 P	54	12 P	55.5	96	0.0	ne	107	10	4 A	12 P	.34	
11	63	8 P	52	5 A	57.5	96	0.0	n	40	4	0 A	6 P	.06	
12	77	6 P	61	5 A	69.0	92	2.6	s	52	8				
13	88	12 M	66	12 P	77.0	66	6.9	w	210	28	1 P	2 P	.05	
14	79	4 P	53	5 A	66.0	55	15.3	nw	135	13				
15	83	4 P	58	2 A	70.5	83	2.5	w	170	28	7 A	5 P	.22	
16	75	5 P	57	6 A	66.0	60	12.5	n	132	12				
17	77	4 P	50	6 A	63.5	69	15.0	s	116	13				
18	78	1 P	54	5 A	66.0	72	7.5	s	178	14				
19	83	4 P	60	4 A	71.5	65	12.5	nw	164	14	12:30 P	2 P	.12	
20	65	4 P	48	12 P	56.5	51	13.8	nw	268	32				
21	64	4 P	43	5 A	53.5	66	6.2	nw	160	20			T	
22	70	5 P	39	5 A	54.5	64	12.0	nw	107	17				
23	74	4 P	42	5 A	58.0	49	15.3	w	143	18				
24	62	9 A	50	4 A	56.0	90	0.0	sw	57	9	11 A	12 P	.48	
25	59	6 P	50	6 A	54.5	94	0.0	n	71	7	7 A	8 A	.01	
26	62	7 A	52	12 P	57.0	91	1.2	w	83	10	5 A	7 P	.45	
27	73	1 P	48	5 A	60.5	65	9.1	w	129	18	1:30 P	3 P	.19	
28	76	2 P	48	5 A	62.0	72	9.6	s	125	14	4 P	12 P	.14	
29	79	12 M	58	12 P	68.5	79	5.8	nw	173	25	0 A	2 A	.19	
30	74	4 P	55	4 A	64.5	65	8.4	w	197	20	9:30 P	10:30 P	.11	

*Based on least time required to blow one mile.

J. F. Hanson, *Observer*

MONTHLY SUMMARY

June 1940		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.30, 17th	30.30	30.54, 1889
Minimum	29.47, 29th	29.55	29.24, 1902
Mean semi-daily	29.903	29.95	
Range	0.83	0.75	
Air Temperature, in degrees F.			
Highest	89, 4th, 5th	91.2	101, 1919
Lowest	39, 22nd	40.0	34, 1891
Mean	64.6	65.7	
Range	60	51.3	
Highest mean daily	77, 13th		
Lowest mean daily	53.5, 21st		
Mean maximum	75.4		
Mean minimum	53.8		
Greatest daily range	37, 7th		
Least daily range	3, 10th		
Precipitation, in inches			
Precipitation	2.46	3.75	9.68, 1922; 0.76, 1908
Maximum precipitation in 24 hrs.	49, 24th, 25th		
Number of days with .01 or more	13	11	17, 1922; 4, 1908
Wind, in miles			
Total movement	3894	3585	4571, 1908; 1409, 1906
Greatest daily movement	269, 6th		
Least daily movement	40, 11th		
Mean hourly velocity	5.4	5.0	
Maximum velocity	32, 20th	24.6	48, 1939
Wind, direction			
Prevailing direction	W	WSW	
North, days	4		
Northeast, days	1		
East, days	0		
Southeast, days	1		
South, days	5		
Southwest, days	3		
West, days	8		
Northwest, days	8		
Weather			
Mean relative humidity, percent	72	66.9	
Mean cloudiness, percent	57	51.1	71, 1903; 28, 1908
Number of clear days	13	10	22, 1908; 1, 1927
Number of fair days	9	12	23, 1912; 4, 1895, 1903
Number of cloudy days	8	8	22, 1903; 1, 1923
Number hours bright sunshine	261	257	362, 1908; 102, 1903
Percent of possible hours of bright sunshine	57.1	54.0	
Thunder and lightning	4th, 5th, 13th, 15th, 19th, 27th, 28th, 29th.		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1939.

REMARKS

The weather during June was in reverse seasonal order. The first seven days were warm and clear, with a mean temperature for the week of 70.6 degrees as compared to the normal of 62.4 degrees for that week. This period was followed by several days with nearly normal temperatures but with many showers, the month closing with a ten-day period of some of the coldest weather on record for this time of the year.

The mean temperature for the month was 64.6 degrees, the normal for June being 65.7 degrees. The highest temperature was 89 on the 4th and 5th; and the lowest 39 on the 22nd, which is an unusually low reading for the last part of June. The precipitation totaled 2.46 inches, compared with the normal of 3.75 inches for June. Rain was recorded every day from the 24th to the 30th. The total precipitation from January 1 to June 30 is now 25.43 inches, while the normal for this period is 21.20 inches. There were 261 hours of sunshine, the normal for June being 257 hours. The total wind movement was 3894 miles, which is 309 miles greater than the normal for June.

Dr. J. K. Shaw of the Pomology Department reports: "While the precipitation during June was below normal, there were no dry periods sufficient to noticeably check the growth of vegetation. There were several rainy periods favorable for apple scab infection, and on trees not well sprayed much scab developed. The strawberry harvesting season was at its peak at the end of the month when frequent showers favored good size of berries but caused some decay. In spite of much unfavorable weather during apple bloom, there was a satisfactory set of fruit and there is promise of a good crop though less than last year."

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AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 619 July 1940

Meteorological Observations

FOR

JULY

1940

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

MONTHLY WEATHER SUMMARY

Day	Temperature					Humidity	Sunshine	Wind			Precipitation			
	Maximum	Time	Minimum	Time	Mean			Direction	Movement	Maximum	Began	Ended	Water	Snow
1	69	2 P	50	4 A	59.5	67	6.0	nw	164	25	2:30 P	3 P	.03	
2	73	2 P	48	5 A	60.5	68	8.5	nw	91	20			T	
3	76	2 P	46	5 A	61.0	68	9.8	s	70	9	10 P	12 P	.14	
4	68	6 P	55	12 P	61.5	89	1.0	nw	96	11	0 A	8:30A	.48	
5	78	2 P	50	5 A	64.0	74	9.9	nw	84	25				
6	82	6 P	49	5 A	65.5	61	15.1	nw	81	13				
7	85	4 P	50	5 A	67.5	64	15.2	sw	56	7				
8	88	4 P	56	5 A	72.0	61	15.0	s	93	11				
9	89	2 P	59	5 A	74.0	74	7.5	w	105	28	3:30 P	4 P	.49	
10	86	2 P	59	5 A	72.5	70	11.4	w	67	10				
11	82	2 P	57	12 P	69.5	82	2.5	n	64	9	3 P	8 P	.13	
12	61	4 P	55	7 A	58.0	92	0.0	n	109	12	0 A	1 P	.27	
13	75	4 P	49	12 P	62.5	67	14.0	n	99	12				
14	79	3 P	47	5 A	63.0	62	14.7	sw	62	7				
15	82	3 P	47	4 A	64.5	61	12.5	s	150	10				
16	77	4 P	57	4 A	67.0	82	6.0	s	134	8	8:30 A	9 A	.07	
17	82	2 P	56	4 A	69.0	75	11.5	s	65	5				
18	85	4 P	67	5 A	76.0	85	4.5	s	73	18	6:00 P	6:30P	1.18	
19	88	4 P	64	4 A	76.0	75	10.0	nw	78	8				
20	83	2 P	66	6 A	74.5	93	2.1	sw	59	5	5:30 A	8:30P	.29	
21	87	3 P	70	6 A	78.5	90	5.0	nw	74	12	3 A	6 P	.54	
22	86	3 P	63	12 P	74.5	85	6.3	w	60	17	3 P	5:30P	.32	
23	84	5 P	61	7 A	72.5	86	7.5	sw	59	7				
24	83	4 P	68	8 A	75.5	85	5.8	s	130	10			T	
25	84	3 P	63	4 A	73.5	91	2.9	s	136	10	2 A	3:30A	.02	
26	94	3 P	72	5 A	83.0	88	5.0	s	121	13	1:30 A	7 P	.28	
27	91	1 P	70	5 A	80.5	72	10.0	nw	73	10				
28	91	4 P	70	5 A	80.5	70	12.5	nw	54	5				
29	89	2 P	67	5 A	78.0	76	5.0	s	82	10	3 P	10:30P	.33	
30	93	2 P	71	0 A	82.0	81	7.3	sw	118	17	3:55 P	4 P	.12	
31	85	2 P	58	12 P	71.5	72	14.5	nw	162	18				

*Based on least time required to blow one mile.

J. F. Hanson, *Observer*

MONTHLY SUMMARY

July 1940		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.34, 6th	30.27	30.50, 1892
Minimum	29.73, 1st	29.59	29.27, 1932
Mean semi-daily	30.029	29.96	
Range	0.61	0.68	0.97, 1892; 0.47, 1938
Air Temperature, in degrees F.			
Highest	94, 26th	93.9	104, 1911
Lowest	46, 3rd	46.4	40, 1890, 1898
Mean	70.6	70.8	74.7, 1921; 66.3, 1891
Range	48	47.7	
Highest mean daily	83, 26th		
Lowest mean daily	58, 12th		
Mean maximum	82.4		
Mean minimum	58.7		
Greatest daily range	35, 7th, 15th		
Least daily range	6, 12th		
Precipitation, in inches			
Precipitation	4.69	4.10	14.51, 1897; 0.70, 1929
Maximum precipitation in 24 hrs.	1.18, 18th		
Number of days with .01 or more	15	11	20, 1915; 4, 1924
Wind, in miles			
Total movement	2869	3422	5097, 1909; 1109, 1894
Greatest daily movement	164, 1st		
Least daily movement	54, 28th		
Mean hourly velocity	3.9	4.6	
Maximum velocity	28, 9th	28.7	44, 1936
Wind, direction			
Prevailing direction	W	SW	
North, days	3		
Northeast, days	0		
East, days	0		
Southeast, days	0		
South, days	10		
Southwest, days	5		
West, days	3		
Northwest, days	10		
Weather			
Mean relative humidity, percent	76.3	68.4	
Mean cloudiness, percent	61	50.9	69, 1914; 31, 1924
Number of clear days	10	10	22, 1923; 0, 1915
Number of fair days	15	14	24, '09, '21; 5, '89, '23, '28, '36
Number of cloudy days	6	7	18, 1889; 0, 1910
Number hours bright sunshine	259	268	371, 1910; 180, 1931
Percent of possible hours of bright sunshine	56.1	58	
Thunder and lightning	1st, 9th, 11th, 18th, 22nd, 24th, 25th, 26th, 29th, 30th.		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1939.

REMARKS

The weather during the first two weeks in July was cold, while the last half of the month was unusually hot. As a result, the average temperature for the month was practically normal, the mean being 70.6 degrees. The normal mean temperature for July is 70.8 degrees. The highest temperature during the month was 94 degrees on the 26th. The normal maximum for July is 93.9 degrees. The weather during the last 10 days was made uncomfortable by the high humidity which accompanied the relatively high temperature. The mean relative humidity for the month was 76.3 percent, compared to a normal of 68.4 percent. A similar spell of hot weather was experienced from the 4th to the 11th day of July in 1937. The temperature was higher during that period than during the hot days in the past month, but the humidity was not as high. There was rain on 15 days during the month but many of these rains were light showers. A very heavy rain of 1.18 inches fell in half an hour on July 18. The total rainfall during the month was 4.69 inches, the normal for the month being 4.10 inches. The total rainfall since January 1 is now 30.12 inches, the normal for this period being 25.30 inches. There were 259 hours of bright sunshine compared to a normal of 268 hours. The total wind movement during the month was 2869 miles. This is considerably less than normal, as the average wind movement for July is 3422 miles.

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AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 620 August 1940

Meteorological Observations

FOR

AUGUST

1940

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

MONTHLY WEATHER SUMMARY

Day	Temperature					Humidity	Sunshine	Wind			Precipitation			
	Maximum	Time	Minimum	Time	Mean			Direction	Movement	Maximum*	Began	Ended	Water	Snow
1	77	3 P	54	5 A	65.5	66	9.0	n	155	18				
2	79	3 P	54	5 A	66.5	61	14.0	ne	123	12				
3	81	4 P	50	5 A	65.5	62	14.4	se	85	9				
4	83	4 P	51	4 A	67.0	75	10.6	s	122	12				
5	85	4 P	65	5 A	75.0	77	2.8	s	163	12				
6	87	3 P	68	5 A	77.5	83	6.6	se	176	9	4 P	11 P	.50	
7	83	6 P	65	12 P	74.0	74	8.5	n	106	13				
8	85	5 P	58	6 A	71.5	69	14.2	nw	65	7				
9	86	4 P	56	5 A	71.0	72	14.2	nw	51	6				
10	89	3 P	58	5 A	73.5	66	12.0	se	50	6				
11	87	3 P	61	6 A	74.0	73	14.1	se	70	8				
12	84	3 P	60	6 A	72.0	73	10.0	s	120	10				
13	84	12 M	66	12 P	75.0	80	4.0	s	120	9	1 P	1:30P	.06	
14	82	4 P	57	12 P	69.5	71	14.0	n	105	12				
15	83	4 P	53	6 A	68.0	65	14.0	se	79	8				
16	81	2 P	53	6 A	67.0	69	12.0	s	99	10				
17	86	3 P	55	5 A	70.5	72	10.3	s	95	9				
18	82	12 M	69	4 A	75.5	80	1.0	se	91	11	2 P	5 P	.10	
19	84	3 P	59	12 P	71.5	85	1.5	se	115	9	0 A	12 P	.60	
20	72	4 P	48	12 P	60.0	64	6.5	n	182	22				
21	74	4 P	43	5 A	58.5	71	13.7	n	59	10				
22	76	4 P	46	5 A	61.0	70	9.7	s	66	7				
23	77	3 P	51	12 P	64.0	74	3.3	nw	141	14	5 A	6:30A	.13	
24	63	4 P	40	12 P	51.5	65	9.5	nw	161	20				
25	70	3 P	34	6 A	52.0	62	7.5	s	60	10				
26	71	4 P	49	12 P	60.0	71	6.0	w	91	10				
27	72	3 P	41	6 A	56.5	62	7.0	w	74	4				
28	67	12 M	45	6 A	56.0	84	2.0	w	45	6				
29	78	4 P	45	5 A	61.5	66	8.0	se	109	11	10 P	12 P	.04	
30	76	4 P	59	4 A	67.5	95	0.5	nw	103	9	2 A	11 P	.12	
31	84	2 P	68	3 A	76.0	84	2.1	s	138	15	4 A	5 A	.01	

*Based on least time required to blow one mile.

J. F. HANSON, *Observer*

MONTHLY SUMMARY

August 1940		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.45, 11th	30.32	30.50, 1934
Minimum	29.60, 19th	29.61	28.87, 1930
Mean semi-daily	30.114	30.00	
Range	0.85	0.71	
Air Temperature, in degrees F.			
Highest	89, 10th	91.6	100, 1918
Lowest	34, 25th	43.4	37, 1894, 1908
Mean	66.9	68.6	
Range	55	48.1	
Highest mean daily	77.5, 6th		
Lowest mean daily	51.5, 24th		
Mean maximum	79.6		
Mean minimum	54.2		
Greatest daily range	36, 25th		
Least daily range	13, 18th		
Precipitation, in inches			
Precipitation	1.56	4.08	8.40, 1928; .31, 1894
Maximum precipitation in 24 hrs.	0.60, 19th		[illegible]
Number of days with .01 or more	8	11	16, 1892, 1933; 4, 1899
Wind, in miles			
Total movement	3219	3127	4,271, 1910; 1,920, 1894
Greatest daily movement	182, 20th		
Least daily movement	45, 28th		
Mean hourly velocity	4.3	4.2	
Maximum velocity	22, 20th	22.7	35, 1915
Wind, direction			
Prevailing direction	S	SW	
North, days	5		
Northeast, days	1		
East, days	0		
Southeast, days	8		
South, days	9		
Southwest, days	0		
West, days	[illegible]		
Northwest, days	3		
Weather			
Mean relative humidity, percent	72.3	70.2	
Mean cloudiness, percent	45	49.7	67, 1901; 27, 1923
Number of clear days	13	9	21, 1939; 0, 1915, 1929
Number of fair days	10	13	25, 1912; 3, 1939
Number of cloudy days	8	9	18, 1901, '28; 2, '10, '23
Number hours bright sunshine	163	237	317, 1921; 152, 1915, 1929
Percent of possible hours of bright sunshine	61.3	55.2	
Thunder and lightning	6th, 13th, 23rd		
First Frost		Sept. 21	Aug. 22, '94, '95; Oct 13, '09

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1939.

REMARKS

The weather during August was colder than usual with a mean temperature of 66.9 degrees. The normal mean temperature for August is 68.6 degrees. The lowest temperature was 34 degrees on the 25th. This is the lowest August temperature recorded at this station. The nearest approach to this minimum was 37 degrees on August 22, 1894 and August 29, 1908. There was frost on August 25 on low land in town, particularly in South Amherst, with damage to tobacco, corn and other crops. The highest temperature was 89 degrees on the 10th. Rainfall was considerably less than normal, being 1.56 inches. The normal rainfall for August is 4.08 inches. There were 263 hours of bright sunshine compared to a normal of 237 hours. The wind movement was 3219 miles which is slightly above normal. The mean relative humidity for August was 70.2 percent.

Dr. J. K. Shaw of the Pomology Department makes the following report: "Apples are gaining size somewhat slowly due to cool weather and perhaps in some cases lack of abundant rains. Some varieties are a week or more later than the average. These conditions, especially cool nights, have favored color development in red varieties so that early and mid-season varieties are showing much better color development than usual. Early peach varieties have matured good crops and later varieties are coming on well though somewhat later than normal. Pears are making a heavier crop than usual. The blueberry crop is about over and the yield was rather light due to winter injury to the plants. The frost of August 25 that caused much injury to tender crops did not harm fruit crops."

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AMHERST, MASS.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

10 3

Meteorological Series Bulletin No. 621 September 1940

Meteorological Observations

FOR

SEPTEMBER

1940

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Rain	Snow
	Degrees	Time	Degrees	Time										
1	82	2 P	72	11 P	77.0	82	1.3	s	182	20			T	
2	78	5 P	66	12 P	72.0	84	2.7	n	83	18	7 P	7:30P	.13	
3	78	2 P	60	12 P	69.0	75	6.9	nw	85	22				
4	75	3 P	51	6 A	63.0	67	8.9	n	94	22				
5	75	3 P	50	6 A	62.5	70	11.9	n	120	32				
6	72	3 P	45	6 A	58.5	67	10.7	n	85	25				
7	65	2 P	45	6 A	55.0	64	9.3	n	129	20				
8	74	4 P	42	6 A	58.0	68	12.5	sw	66	9				
9	60	12 M	55	6 A	57.5	91	0.0	nw	66	6	1 P	2:30P	.08	
10	66	2 P	51	12 P	58.5	98	0.5	s	58	10	8 A	1 P	.43	
11	65	3 P	44	5 A	54.5	77	10.5	se	80	10				
12	68	12 M	41	6 A	54.5	76	7.5	nw	74	11				
13	67	2 P	45	6 A	56.0	84	6.4	nw	58	13				
14	75	4 P	42	5 A	58.5	77	10.0	w	40	5				
15	72	3 P	44	6 A	58.0	76	10.0	e	104	17				
16	71	3 P	46	5 A	58.5	79	10.1	n	166	18				
17	73	3 P	50	2 A	61.5	76	8.1	nw	120	22				
18	80	3 P	50	6 A	65.0	76	12.4	nw	71	9				
19	81	2 P	47	6 A	64.0	81	9.5	w	33	6				
20	84	4 P	49	5 A	66.5	79	7.7	se	43	8			T	
21	85	1 P	63	6 A	74.0	91	3.1	sw	89	10	7:30 A	8 P	.10	
22	76	1 P	52	12 P	64.0	75	12.2	n	228	25				
23	76	3 P	44	5 A	60.0	79	12.1	sw	65	8				
24	77	2 P	57	5 A	67.0	92	0.0	s	218	17				
25	70	0 A	40	10 P	55.0	96	1.1	n	226	22	1 A	6 P	.79	
26	55	4 P	35	12 P	45.0	75	11.0	nw	182	32				
27	66	3 P	30	6 A	48.0	76	12.0	sw	84	12				
28	72	3 P	33	6 A	52.5	82	11.9	w	56	8				
29	75	3 P	35	7 A	55.0	82	10.5	n	54	12				
30	65	4 P	43	12 P	54.0	83	8.2	n	132	9				

*Based on least time required to blow one mile.

J. F. HANSON, *Observer*

MONTHLY SUMMARY

September 1940		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.43, 30th	30.45	30.65, 1924
Minimum	29.48, 10th	29.57	28.41, 1938
Mean semi-daily	30.032	30.06	
Range	0.95	.88	1.99, 1938; .57, 1910
Air Temperature, in degrees F.			
Highest	85, 21st	87.7	97, 1895, 1929
Lowest	30, 27th	33.2	24.5, 1914
Mean	60.1	61.7	
Range	55	54.5	
Highest mean daily	77, 1st		
Lowest mean daily	45, 26th		
Mean maximum	72.6		
Mean minimum	47.6		
Greatest daily range	40, 29th		
Least daily range	5, 9th		
Precipitation, in inches			
Precipitation	1.53	4.26	14.55, 1938; .52, 1914
Maximum precipitation in 24 hrs.	0.79, 25th		
Number of days with .01 or more	5	10	16, 1933; 3, 1903
Wind, in miles			
Total movement	3091	3271	4,686, 1896; 1,414, 1894
Greatest daily movement	228, 22nd		
Least daily movement	33, 19th		
Mean hourly velocity	4.3	4.5	
Maximum velocity	32, 5th, 26th	25.9	80, 1938
Wind, direction			
Prevailing direction	NW	WSW	
North, days	10		
Northeast, days	0		
East, days	1		
Southeast, days	2		
South, days	3		
Southwest, days	4		
West, days	3		
Northwest, days	7		
Weather			
Mean relative humidity, percent	79	73.6	
Mean cloudiness, percent	47	49.9	70, 1934; 27, 1908, 1914
Number of clear days	16	10	19, 1932; 2, 1907, 1928
Number of fair days	7	10	19, 1908; 3, 1889
Number of cloudy days	7	10	20, 1934; 4, 1908, 1916
Number hours bright sunshine	239	201	255, 1916; 106, 1934
Percent of possible hours of bright sunshine	64.1	54.9	
Thunder and lightning	21st		
First frost	Sept. 27	Sept. 21	Aug. 22,'94,'95; Oct 13,'09

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1939.

REMARKS

The outstanding feature of the weather for September was the small amount of rain. The total for the month was 1.53 inches, as compared to the normal for September of 4.24 inches. Only three times in the past 52 years has the rainfall for September been less. In 1926, only 1.50 inches fell; in 1916, 1.37 inches; and in 1914, .52 inch. The total rainfall since January 1 is now 33.21 inches, compared to a normal of 33.62 inches.

The mean temperature for the month was 60.1 degrees, the normal being 61.7 degrees. The highest temperature was 85 degress on the 21st. The lowest was 30 degrees on the 27th, and this was the first killing frost of the season at the observatory. There have been earlier frosts, however, on low ground in the town of Amherst. There were 239 hours of bright sunshine compared to a normal of 201 hours. The mean humidity was 79 percent, while the normal mean humidity is 73.6 percent. The wind movement was very nearly normal, with no high winds.

Dr. J. K. Shaw of the Pomology Department makes the following report: "The retarded development of apples and other fruits noted last month continued through September, and all varieties are more or less late in coming to maturity. There is much less pre-harvest drop of apples than usual and the fruit has colored well. A general frost on the night of September 27 killed late tender crops but did no harm to fruit crops. Coming later than usual, the frost did no more damage to field and garden crops than usual."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 622 October 1940

Meteorological Observations

FOR

OCTOBER

1940

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Rain	Snow
	Degrees	Time	Degrees	Time										
1	60	4 P	38	7 A	49.0	88	0.4	n	107	10				
2	69	2 P	46	3 A	57.5	87	2.0	n	140	15			T	
3	68	4 P	50	7 A	59.0	78	6.5	n	136	20				
4	62	3 P	38	12 P	50.0	79	12.5	n	148	14				
5	69	3 P	30	7 A	49.5	81	13.0	s	72	8				
6	69	4 P	50	4 A	59.5	86	6.5	s	194	13				
7	76	4 P	58	6 A	67.0	86	6.5	s	201	17			T	
8	63	5 A	53	12 P	58.0	95	0.0	s	108	9	8 A	9 P	.36	
9	64	3 P	42	12 P	53.0	79	11.4	n	123	13				
10	65	5 P	36	6 A	50.5	82	11.3	n	101	13				
11	70	3 P	33	6 A	51.5	83	10.1	sw	54	7				
12	76	3 P	40	7 A	58.0	81	11.0	s	69	9				
13	72	1 P	46	12 P	59.0	78	7.5	nw	182	20				
14	71	3 P	36	7 A	53.5	77	11.1	s	73	10				
15	71	12 P	39	12 P	55.0	94	2.0	s	240	28	3:30 P	6 P	.15	
16	53	4 P	29	12 P	41.0	65	11.1	nw	94	18				
17	52	4 P	23	5 A	37.5	88	5.0	nw	74	13				
18	47	1 P	27	5 A	37.0	87	1.1	nw	144	32			T	
19	42	1 P	25	7 A	33.5	49	7.5	nw	208	15				
20	49	4 P	28	7 A	38.5	57	10.9	n	121	13				
21	43	2 P	26	12 P	34.5	62	6.3	nw	214	25			T	
22	47	3 P	19	7 A	33.0	65	10.8	nw	96	13				
23	61	2 P	26	1 A	43.5	63	6.7	sw	192	17			T	
24	66	2 P	36	12 P	51.0	54	10.7	nw	180	20			T	
25	53	3 P	30	5 A	41.5	80	0.1	sw	36	7			T	
26	53	12 M	28	12 P	40.5	67	7.5	n	164	25				
27	47	12 M	22	4 A	34.5	73	10.5	nw	148	17				
28	46	2 P	19	6 A	32.5	62	6.3	n	127	18				
29	56	4 P	21	7 A	38.5	70	9.8	n	43	5				
30	40	8 P	32	0 A	36.0	98	0.0	n	36	10	7 A	12 P	.31	
31	52	2 P	36	4 A	44.0	85	3.9	n	148	12	0 A	2 A	.22	

*Based on least time required to blow one mile.

J. F. Hanson, *Observer*

MONTHLY SUMMARY

October 1940		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.44, 5th	30.53	30.68, 1929
Minimum	29.67, 15th	29.42	29.00, 1926
Mean semi-daily	30.081	30.06	
Range	0.77	1.11	1.47, 1926; .76, 1899
Air Temperature, in degrees F.			
Highest	76, 7th, 12th	79.4	90.5, 1908
Lowest	19, 22nd, 28th	23.4	17, 1936
Mean	46.7	50.5	56.4, 1920; 43.2, 1890
Range	57	56.0	
Highest mean daily	67.0, 7th		
Lowest mean daily	32.5, 28th		
Mean maximum	59.1		
Mean minimum	34.3		
Greatest daily range	39, 5th		
Least daily range	8, 30th		
Precipitation, in inches			
Precipitation	1.04	3.29	8.81, 1911; .01, 1924
Maximum precipitation in 24 hrs.	0.53, 30th 31st		
Number of days with .01 or more	4	9	15, 1913; 1, 1897, 1924
Wind, in miles			
Total movement	3973	4074	5,467, 1910; 2,540, 1894
Greatest daily movement	240, 15th		
Least daily movement	36, 25th, 30th		
Mean hourly velocity	5.3		
Maximum velocity	32, 18th	29.5	42, 1937
Wind, direction			
Prevailing direction	NW	W	
North, days	12		
Northeast, days	0		
East, days	0		
Southeast, days	0		
South, days	7		
Southwest, days	3		
West, days	0		
Northwest, days	9		
Weather			
Mean relative humidity, percent	76.7	69.0	
Mean cloudiness, percent	41.5	48	67, 1932; 18, 1924
Number of clear days	14	10	21, 1938; 1, 1911
Number of fair days	10	10	17, 1924; 3, 1938
Number of cloudy days	7	11	19, 1896; 3, 1924
Number hours bright sunshine	220	175.0	232, '23, '38; 91, 1913
Percent of possible hours of bright sunshine	64.5	51.3	
Thunder and lightning			
First frost	Sept. 27	Sept. 21	Aug. 22,'94,'95; Oct 15,'39

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1939.

REMARKS

The weather during October was clear, cool and dry. Rain in excess of .01 inch fell on only 4 days, although there were traces of rain on 7 additional days. The total rainfall for the month was 1.04 inches, the normal rainfall for October being 3.29 inches. The total precipitation since January 1 is now 34.25 inches. The normal for this period is 36.91 inches.

The mean temperature for the month was 46.7 degrees, the normal being 50.5 degrees. This is the coldest October since 1925 when it was 43.5 degrees. The highest temperature was 76 degrees on the 7th and 12th. The lowest temperature was 19 degrees on the 22nd and 28th. Only twice during the last 52 years has the temperature been lower than 19 degrees in October. In 1936 it fell to 17 degrees and in 1904, to 18 degrees. The domestic heating load for October was 566 degree-days. There were 183 degree-days in September. The total for September and October is, therefore, 751 degree-days. The normal for these two months is 604 degree-days. There were 220 hours of bright sunshine compared with a normal of 175 hours. There were no unusually high winds.

Dr. J. K. Shaw of the Department of Pomology gives the following report: "Sub-normal temperatures continued through October and there were several sharp freezes during the last half of the month. Some apples remained on the trees during one or more of these freezes and those going through more than one or two of them must have been injured. The total amount of such fruit was small. Late varieties did not size up well. The leaves were frozen prematurely and this was not favorable for the trees and makes them less able to withstand severe freezing if such should occur this winter. Rainfall was also below average and unless abundant rains occur before the ground freezes, the trees will go into the winter under somewhat unfavorable conditions."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 623 November 1940

Meteorological Observations

FOR

NOVEMBER

1940

C. I. GUNNESS

OBSERVATORY
Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
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DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Rain	Snow
1	55	3 P	28	7 A	41.5	80	5.8	w	52	8				
2	48	4 P	39	12 P	43.5	99	0.0	nw	131	15	3:30 A	6 P	2.25	
3	53	2 P	38	1 A	45.5	70	2.6	nw	262	32			T	
4	66	1 P	36	6 A	51.0	62	10.3	sw	148	14				
5	61	4 P	41	4 A	51.0	78	0.0	se	55	10				
6	57	0 A	38	10 P	47.5	63	1.1	nw	245	25	3:30 A	5 A	.04	
7	43	11 A	33	12 P	38.0	65	1.5	nw	238	18				
8	47	2 P	32	2 A	39.5	70	4.6	nw	231	25				
9	51	2 P	28	12 P	39.5	67	8.6	n	214	18				
10	45	3 P	27	3 A	36.0	80	0.4	nw	31	5				
11	58	12 P	41	6 A	49.5	80	0.0	s	112	17			T	
12	60	4 A	44	12 P	52.0	95	0.0	s	265	28	0 A	8 P	.82	
13	44	0 A	37	12 P	40.5	96	0.0	n	102	17	0 A	12 P	.32	
14	42	2 P	37	0 A	39.5	97	0.0	n	173	15	0 A	12 P	.86	
15	45	2 P	39	6 A	42.0	92	0.0	n	126	10	0 A	8 A	.45	
16	43	0 A	29	12 P	36.0	77	0.0	nw	148	17				T
17	43	2 P	28	6 A	35.5	76	1.2	sw	158	14				
18	40	1 P	32	12 P	36.0	65	0.2	nw	269	25				
19	47	2 P	24	7 A	35.5	74	8.0	s	130	13				
20	54	3 P	36	0 A	45.0	75	1.1	s	250	17				
21	54	3 P	28	8 A	41.0	74	4.7	s	86	10				
22	69	3 P	43	2 A	56.0	76	5.3	s	225	28			T	
23	49	11 A	39	12 P	44.0	73	0.8	se	170	14				
24	44	4 P	37	4 A	40.5	89	0.0	se	119	14	5:30 A	9 A	.04	
25	37	0 A	20	12 P	28.5	57	7.3	n	288	28				T
26	34	2 P	16	7 A	25.0	64	6.5	n	87	14	10 P	12 P	.29	2.50
27	29	2 P	23	4 A	26.0	96	0.0	n	157	14	0 A	7 A	1.01	8.50
28	29	2 A	14	10 P	21.5	58	6.6	nw	249	25				
29	32	12 P	11	7 A	21.5	89	0.0	s	66	8	11 A	8 P	.05	.50
30	36	1 P	28	11 P	32.0	73	4.4	nw	199	28	8 P	12 P	.18	1.50

*Based on least time required to blow one mile.

Sol Kriminetsky, *Observer*

MONTHLY SUMMARY

November 1940		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.63, 19th	30.59	30.87, 1932
Minimum	29.64, 27th, 28th	29.30	28.73, 1904
Mean semi-daily	30.086	30.05	
Range	0.99	1.29	1.84, 1904; .94, 1905
Air Temperature, in degrees F.			
Highest	69, 22nd	66.0	75, 1938
Lowest	11, 29th	12.9	-4, 1938
Mean	39.4	38.9	44.1, 1931; 33.6, 1901
Range	58	53.0	
Highest mean daily	56, 22nd		
Lowest mean daily	21.5, 28th, 29th		
Mean maximum	47.2		
Mean minimum	31.5		
Greatest daily range	30, 4th		
Least daily range	5, 14th		
Precipitation, in inches			
Precipitation	6.31	3.41	8.64, 1927; .63, 1917
Snow	13.00	2.34	13.50, 1938
Maximum precipitation in 24 hrs.	2.25, 2nd		
Number of days with .01 or more	11	9	22, 1921; 2, 1904
Wind, in miles			
Total movement	4986	4531	5,978, 1906; 2,589, 1889
Greatest daily movement	288 25th		
Least daily movement	31, 10th		
Mean hourly velocity	6.9	6.3	
Maximum velocity	32, 3rd	30.3	44, 1938
Wind, direction			
Prevailing direction	NW	WNW	
North, days	7		
Northeast, days	0		
East, days	0		
Southeast, days	3		
South, days	7		
Southwest, days	2		
West, days	1		
Northwest, days	10		
Weather			
Mean relative humidity, percent	77	70.6	
Mean cloudiness, percent	67	55.1	72, 1900, 1927; 34, 1917
Number of clear days	4	6	15, 1903; 1, 1900, 1911, 1927
Number of fair days	7	9	16, '12; 4, '89, '30, '32, '35
Number of cloudy days	19	15	24, 1927; 9, 1905, 1917
Number hours bright sunshine	81	121	182, 1903; 66, 1927
Percent of possible hours of bright sunshine	27.6	41.3	
First Snow	Nov. 16	Nov. 6	Oct. 10, '25; Nov. 27, '31

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1939.

REMARKS

The outstanding feature of November weather was the high rain and snowfall. The total precipitation for the month was 6.31 inches. Of this amount, 2.25 inches fell as rain on the 2nd and 1.30 inches fell as snow on the 26th and 27th. A total of 13 inches of snow fell during the month, the storm on the 26th and 27th giving 11 inches. This heavy snowfall in November has been exceeded only once in the history of the station. A total of 13.50 inches of snow fell in November 1938. On the 24th and 25th of November of that year there was a fall of 11.50 inches. The total precipitation since January 1 is now 40.56 inches, the normal for this period being 40.32 inches.

The mean temperature for the month was 39.4 degrees. The normal mean temperature for November is 38.9 degrees. The highest temperature was 69 degrees on the 22nd and the lowest, 11 degrees on the 29th. The domestic heating load for the month was 769 degree-days, the normal being 783 degree-days. The total heating load for the season is 1520 degree-days, the normal for this period being 1386 degree-days. There were only 81 hours of bright sunshine, whereas the normal for November is 121 hours. The total wind movement for the month was 4986 miles, the normal being 4531 miles. The highest wind velocity was 32 miles per hour on the 3rd.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 624 December 1940

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DECEMBER

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C. I. GUNNESS

OBSERVATORY

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DAILY RECORDS

	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
Day	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Rain	Snow
1	44	10 A	22	12 P	33.0	81	4.0	nw	213	25				
2	30	2 P	11	7 A	20.5	71	6.8	s	139	12				T
3	26	0 A	2	12 P	14.0	60	9.2	nw	259	28				
4	23	8 P	-10	6 A	6.5	87	4.8	nw	97	14	7 P	12 P	.18	2.00
5	32	4 P	20	2 A	26.0	98	0.0	s	57	17	0 A	3 P	.19	2.25
6	26	2 P	7	7 A	16.5	67	3.9	n	119	13				
7	46	2 P	14	7 A	30.0	86	3.6	s	181	18			T	
8	42	2 P	30	7 A	36.0	82	2.8	n	112	22				
9	35	2 P	14	12 P	24.5	67	7.8	nw	171	14				
10	43	2 P	13	2 A	28.0	75	0.4	s	94	22				
11	38	0 A	28	7 A	33.0	64	6.8	n	201	14				
12	33	12 P	27	7 A	30.0	97	0.0	nw	42	8	6 A	12 P	.16	.75
13	45	8 A	23	12 P	34.0	71	1.8	nw	192	20	0 A	3 A	.08	
14	34	2 P	12	12 P	23.0	62	7.0	n	81	6				
15	32	3 P	7	7 A	19.5	79	6.9	nw	31	2				
16	33	8 P	18	5 A	25.5	92	0.0	n	48	5	8 A	12 P	.87	
17	37	2 P	19	12 P	28.0	72	0.4	n	153	22				
18	39	3 P	15	8 A	27.0	72	9.0	se	83	9				
19	38	2 P	18	7 A	28.0	84	5.7	se	58	7				
20	41	4 P	31	0 A	36.0	91	0.0	se	128	11	7 A	8 A	.06	
21	41	2 P	33	8 A	37.0	87	0.0	nw	66	6				
22	38	12 M	34	5 A	36.0	86	0.0	s	62	6			T	
23	36	2 A	21	12 P	28.5	60	6.5	n	195	22				
24	44	3 P	14	7 A	29.0	70	7.5	s	69	8				
25	47	3 P	23	8 A	35.0	84	9.0	nw	49	6				
26	45	1 P	23	7 A	34.0	88	3.4	w	44	7	7 P	12 P	.06	
27	47	2 P	34	0 A	40.5	91	1.0	n	69	6	0 A	8 A	.02	
28	39	2 P	36	8 A	37.5	94	0.0	n	69	8	6 A	9 P	1.00	
29	40	3 P	35	7 A	37.5	96	0.0	n	57	5	7:30 A	5 P	.33	
30	42	11 A	38	8 A	40.0	85	0.0	sw	104	17	4 A	9 A	.06	
31	40	2 P	36	7 A	38.0	69	0.7	nw	307	28				

*Based on least time required to blow one mile.

SOL KRIMINETSKY, *Observer*

MONTHLY SUMMARY

December 1940		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.64, 19th	30.66	30.96, 1889
Minimum	29.44, 30th	29.27	28.85, 1915
Mean semi-daily	30.063	30.06	
Range	1.20	1.38	1.78, 1895; 1.01, 1892
Air Temperature, in degrees F.			
Highest	47, 25th, 27th	54.3	65.5, 1908
Lowest	−10, 4th	−1.9	−22.5, 1917
Mean	29.4	27.5	36.9, 1891; 17.1, 1917
Range	57	56.2	
Highest mean daily	40.5, 27th		
Lowest mean daily	6.5, 4th		
Mean maximum	37.9		
Mean minimum	20.9		
Greatest daily range	33, 4th		
Least daily range	3, 28th		
Precipitation, in inches			
Precipitation	3.01	3.39	7.77, 1901; .87, 1896
Snow	5.00	8.50	26.50, '02; t, 1891
Maximum precipitation in 24 hrs.	1.00, 28th		
Number of days with .01 or more	11	10	17, 1902; 4, 1892
Wind, in miles			
Total movement	3560	4710	6,694, 1925; 3,239, 1918
Greatest daily movement	307, 21st		
Least daily movement	31, 15th		
Mean hourly velocity	4.8	6.3	
Maximum velocity	28, 3rd, 31st	31.4	48, 1938
Wind, direction			
Prevailing direction	NW	WNW	
North, days	10		
Northeast, days	0		
East, days	0		
Southeast, days	3		
South, days	6		
Southwest, days	1		
West, days	1		
Northwest, days	10		
Weather			
Mean relative humidity, percent	79.6	69.4	
Mean cloudiness, percent	62	54.9	71, 1929; 39, 1919
Number of clear days	10	8	15, 1890; 2, 1922, 1933
Number of fair days	7	9	16, '09; 4, '89 '30, '31, '36, '38
Number of cloudy days	14	14	23, '33; 7, '09, '23
Number hours bright sunshine	109	128	172, 1896; 63, 1933
Percent of possible hours of bright sunshine	38.9	45.2	

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1939.

ANNUAL SUMMARY

Annual 1940		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.64, Dec. 19	30.81	31.05, 1920
Minimum	29.07, Feb. 14	28.95	28.41, 1938
Mean semi-daily	30.002	30.01	
Range	1.57	1.85	2.47, 1938; 1.38, 1933
Air Temperature, in degrees F.			
Highest	94, July 26	95.7	104, 1911
Lowest	–10, Dec. 4	-12.2	-26, 1904
Mean	46.1	47.4	49.8, 1921; 44, 1904
Range	104	107.8	
Highest mean daily	83, July 26		
Lowest mean daily	6.5, Dec. 4		
Mean maximum	56.1	57.8	
Mean minimum	35.8	36.5	
Greatest daily range	42, May 11		
Least daily range	3		
Precipitation, in inches			
Precipitation	43.57	43.70	59.00, 1938; 30.68, 1908
Snow	54.75	47.78	89.00, 1893; 24.50, 1919
Max. precipitation in 24 hrs.	2.58, May 31		
Number of days with .01 or more	122	124	144, 1902; 96, 1924
Wind, in miles			
Total movement	51,173	52,223	63,571, 1908; 36,257, 1894
Greatest daily movement	572, Feb. 15		
Least daily movement	31, Nov. 10, Dec. 15		
Mean velocity	5.8	5.8	
Maximum velocity	40, Feb. 14, Apr. 6, May 7	39.5	80, 1938
Wind, direction			
Prevailing direction	WNW	W	
North, days	80		
Northeast, days	7		
East, days	6		
Southeast, days	25		
South, days	63		
Southwest, days	30		
West, days	38		
Northwest, days	117		
Weather			
Mean relative humidity, percent	74.7	67.6	
Mean cloudiness, percent	54	51.7	60, '98, '01, '02; 41, '08, '24
Number of clear days	138	116	169, 1936; 59, 1927
Number of fair days	107	123	182, 1912; 64, 1936
Number of cloudy days	121	126	179, '01, '02; 71, 1910
Number hours bright sunshine	2,352	2,353	2838, 1924; 1864, 1902
Percent of possible hours of bright sunshine	52.8	52.8	
Last snow	April 22	April 15	Mar. 14, '10; May 11, '07
First snow	Nov. 16	Nov. 6	Oct. 10, '25; Nov. 27, '31
Last frost	May 13	May 14	Apr. 23, '04; June 8, '32
First frost	Sept. 27	Sept. 21	Aug. 22, '94, '95; Oct. 13,'09

MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 625 January 1941

Meteorological Observations

FOR

JANUARY

1941

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Rain	Snow
1	39	2 P	27	12 P	33.0	65	8.6	n	274	22				
2	32	1 P	23	7 A	27.5	72	0.0	nw	137	14	7 P	12 P	.17	2.00
3	33	2 P	27	5 A	30.0	95	0.0	n	68	9	0 A	8 A	.13	1.50
4	35	2 P	25	10 P	30.0	90	0.0	nw	157	14	3 A	4 P	.25	4.00
5	33	12 M	18	8 A	25.5	65	2.9	nw	210	25				
6	30	3 P	15	11 P	22.5	63	9.2	nw	343	22				
7	26	5 P	5	8 A	15.5	74	6.3	nw	77	9				
8	30	3 P	0	8 A	15.0	78	9.3	nw	28	5				
9	22	5 P	6	3 A	14.0	87	5.5	nw	26	3	6 P	12 P	.03	.75
10	37	2 P	12	7 A	24.5	79	8.2	nw	40	5				
11	30	3 P	12	5 A	21.0	69	8.7	n	203	17				
12	30	6 P	14	6 A	22.0	77	7.3	nw	204	25	1 P	3 P	.01	.25
13	28	1 P	5	12 P	16.5	62	9.4	nw	348	25				
14	15	3 P	−2	7 A	6.5	64	9.4	nw	224	17				
15	20	2 P	3	2 A	11.5	58	6.7	n	66	11				
16	25	12 P	12	4 A	18.5	73	2.8	n	166	12	3 P	12 P	.22	1.50
17	35	2 P	23	0 A	29.0	95	6.6	n	182	12	0 A	8 A	.35	.75
18	35	2 P	33	8 A	34.0	95	0.1	s	76	7				
19	34	0 A	15	12 P	24.5	64	6.5	nw	209	28				T
20	22	4 P	9	7 A	15.5	63	9.6	nw	326	28				
21	33	3 P	4	8 A	18.5	69	9.6	nw	101	10				
22	38	8 P	15	1 A	26.5	82	7.2	s	60	10				T
23	42	8 A	25	12 P	33.5	74	7.0	nw	216	18				
24	26	0 A	13	8 A	19.5	75	3.3	n	170	18	3 P	12 P	1.05	12.00
25	31	4 P	16	12 P	23.5	83	8.3	n	228	17				
26	27	3 P	5	7 A	16.0	76	7.2	n	102	17				
27	21	3 P	12	8 A	16.5	73	4.5	n	171	11				T
28	32	4 P	11	5 A	21.5	63	7.2	n	105	9				
29	35	3 P	6	12 P	20.5	82	7.9	nw	91	28				
30	18	5 P	−9	7 A	4.5	68	4.2	sw	129	7				
31	32	2 P	7	7 A	19.5	79	7.5	nw	96	15				T

*Based on least time required to blow one mile.

SOL KRIMINETSKY, *Observer*

MONTHLY SUMMARY

January 1941		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.60, 7th	30.70	31.00, 1927
Minimum	29.50, 4th	29.20	28.55, 1913
Mean semi-daily	30.180	30.07	
Range	1.10	1.50	2.18, 1913; 0.97, 1896
Air Temperature, in degrees F.			
Highest	42, 23rd	51.1	66.0, 1932
Lowest	-9, 30th	-7.1	-26.0, 1904
Mean	21.2	24.2	34.2, 1913; 13.9, 1918
Range	51	58.2	
Highest mean daily	34, 18th		
Lowest mean daily	4.5, 30th		
Mean maximum	29.9		
Mean minimum	12.5		
Greatest daily range	30, 8th		
Least daily range	2, 18th		
Precipitation, in inches			
Precipitation	2.21	3.61	7.15, 1898; 1.07, 1896
Snow	22.75	13.24	33, 1898, 1923; 1.50, '08
Maximum precipitation in 24 hrs.	1.05, 24th		
Number of days with .01 or more	8	11	15, '93, '20; 4, 1901
Wind, in miles			
Total movement	4833	5055	7770, 1908; 2896, 1895
Greatest daily movement	348, 13th		
Least daily movement	26, 9th		
Mean hourly velocity	6.5	6.8	
Maximum velocity	28, 19th, 20th, 29th	32.7	47, 1938
Wind, direction			
Prevailing direction	NNW	WNW	
North, days	10		
Northeast, days	0		
East, days	0		
Southeast, days	0		
South, days	2		
Southwest, days	1		
West, days	0		
Northwest, days	18		
Weather			
Mean relative humidity, percent	74.6	70.1	
Mean cloudiness, percent	56	55	78, 1932; 37, 1908
Number of clear days	18	9	17, 1939; 2, 1914
Number of fair days	8	9	18, 1890, 1926; 3, 1916
Number of cloudy days	5	13	22, 1923, 1931; 4, 1920, 1939
Number hours bright sunshine	191	137	214, 1920; 74, 1932
Percent of possible hours of bright sunshine	65.0	46.7	

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1940.

REMARKS

The weather during January was colder than usual and had a heavy fall of snow. The mean temperature for the month was 21.2 degrees which is 3 degrees lower than usual. However, it was 2.7 degrees warmer than January 1940. The lowest temperature was –9 degrees on the 30th and the highest was 42 degrees on the 23rd. The domestic heating load for the month was 1358 degree-days compared to a normal of 1265 degree-days. The total heating load for the season is 3982 degree-days, the normal for this period being 3814 degree-days.

The total precipitation for the month was 2.21 inches, the normal being 3.61 inches. The total snowfall was 22.75 inches of which 12 inches fell on January 24. The normal snowfall for January is 13.32 inches. The total snowfall for the winter is now 40.75 inches, the normal for this period being 24.16 inches. There were 191 hours of bright sunshine compared to a normal of 137 hours. The highest wind velocity was 28 miles per hour.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 626 February 1941

Meteorological Observations

FOR

FEBRUARY

1941

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Rain	Snow
1	38	3 P	5	8 A	21.5	76	9.8	nw	71	8				
2	29	3 P	21	0 A	25.0	93	0.1	nw	30	4	8 A	8 P	.03	1.00
3	30	2 P	18	8 A	24.0	75	7.8	n	207	20				
4	34	2 P	17	12 P	25.5	70	7.2	n	286	25				
5	40	3 P	2	6 A	21.0	74	10.1	nw	59	7				
6	36	2 P	2	7 A	19.0	81	8.2	nw	44	11				
7	46	9 P	27	4 A	36.5	93	0.0	nw	127	25	8 A	11 P	1.39	
8	44	0 A	31	7 A	37.5	61	8.5	w	249	22				
9	35	1 P	12	12 P	23.5	60	8.7	sw	287	22				
10	28	3 P	4	8 A	16.0	60	10.3	n	108	11				
11	40	3 P	9	7 A	24.5	75	10.4	w	49	9				
12	38	4 P	15	6 A	26.5	80	10.4	n	74	12				
13	39	3 P	19	4 A	29.0	85	4.3	se	57	13				
14	39	3 P	32	6 A	35.5	94	0.0	n	77	9			T	
15	38	2 P	24	12 P	31.0	74	5.3	nw	226	40	0 A	6 A	.11	T
16	28	3 P	15	12 P	21.5	54	10.6	nw	382	32				
17	30	2 P	12	6 A	21.0	72	8.4	sw	99	12	8 P	12 P	.02	.25
18	28	1 P	17	7 A	22.5	66	8.8	nw	192	25				
19	26	4 P	18	7 A	22.0	65	7.5	nw	328	28				
20	31	1 P	19	6 A	25.0	67	7.3	nw	367	28				
21	35	5 P	24	3 A	29.5	68	7.1	nw	308	28				
22	37	2 P	25	12 P	31.0	69	6.6	nw	178	17				
23	37	2 P	25	12 P	31.0	65	8.1	nw	299	22				T
24	32	2 P	19	7 A	25.5	60	10.9	nw	303	25				
25	41	3 P	13	6 A	27.0	67	8.0	sw	69	25				
26	31	4 P	17	7 A	24.0	58	11.0	nw	341	28				
27	39	4 P	12	6 A	25.5	59	11.1	n	127	22				
28	26	3 P	14	7 A	20.0	69	5.5	n	357	22	8 P	12 P	.04	1.00

*Based on least time required to blow one mile.

SOL KRIMINETSKY, *Observer*

MONTHLY SUMMARY

February 1941		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.38, 10th	30.63	31.05, 1920
Minimum	28.91, 7th, 8th	29.24	28.56, 1895
Mean semi-daily	29.868	30.04	
Range	1.47	1.38	1.89, '00, '08; .88, '13, '31
Air Temperature, in degrees F.			
Highest	46, 7th	50.5	65.0, 1930
Lowest	2, 5th, 6th	-7.4	-22.5, 1918
Mean	25.8	23.7	
Range	44	58	
Highest mean daily	3.75, 8th		
Lowest mean daily	16.0, 10th		
Mean maximum	34.8	32.8	
Mean minimum	16.7	14.5	
Greatest daily range	38, 5th		
Least daily range	8, 2nd, 19th		
Precipitation, in inches			
Precipitation	1.59	3.19	8.12, 1900; 0.62, 1901
Snow	2.25	13.99	48.75, 1893; 0.50, 1937
Maximum precipitation in 24 hrs.	1.39, 7th		
Number of days with .01 or more	5	10	15, '93, '20; 4, 1901
Wind, in miles			
Total movement	5301	4776	6445, 1896; 3438, 1892
Greatest daily movement	382, 16th		
Least daily movement	30, 2nd		
Mean hourly velocity	7.9	7.1	
Maximum velocity	40, 15th	31.7	48, 1934, 1937
Wind, direction			
Prevailing direction	NW	WNW	
North, days	7		
Northeast, days	0		
East, days	0		
Southeast, days	1		
South, days	0		
Southwest, days	3		
West, days	2		
Northwest, days	15		
Weather			
Mean relative humidity, percent	71.1	66.6	
Mean cloudiness, percent	43	50.9	66, '90, '27; 31, 1905
Number of clear days	19	10	17, '19, '24; 2, 1927
Number of fair days	6	8	16, 1920; 2, 1936
Number of cloudy days	3	10	16, 1894; 2, 1920
Number hours bright sunshine	212	158	221, 1924; 110, '27, '38
Percent of possible hours of bright sunshine	71.6	53.4	

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1940.

REMARKS

The weather during February was marked with less rain and snow than usual, a large amount of sunshine and higher mean temperature than usual. The total precipitation for the month was 1.59 inches compared to a normal of 3.19 inches. The snowfall was 2.25 inches, while normally we get 13.99 inches of snow in February. This is the least snowfall for February on record here at the station with the exception of 1937 when one-half inch fell during the month. There were 212 hours of sunshine, the normal being 158 hours. This has been exceeded only three times at the station, viz., 1919, 1920 and 1924. It will be noted that two of these years were leap years with 29 days in February.

The mean temperature for the month was 25.8 degrees. The normal mean temperature for February is 23.7 degrees. The domestic heating load for the month was 1099 degree-days, the normal being 1156 degree-days. The total heating load for the current season is 5081 degree-days. The normal to this date is 4970 degree-days. The average wind velocity for the month was 7.9 miles per hour, the normal being 7.1 miles per hour. The highest velocity was 40 miles per hour on the 15th.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 627 March 1941

Meteorological Observations

FOR

MARCH

1941

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Rain	Snow
1	38	3 P	22	0 A	30.0	78	6.3	n	395	25	0 A	8 A	.02	.50
2	40	3 P	27	7 A	33.5	51	11.2	nw	266	22				
3	44	3 P	31	3 A	37.5	58	1.0	s	134	11			T	
4	41	6 A	18	12 P	29.5	80	2.2	n	269	25				T
5	32	4 P	17	2 A	24.5	58	11.3	nw	312	25				
6	35	2 P	20	7 A	27.5	65	11.3	nw	203	20				
7	35	3 P	14	7 A	24.5	56	9.5	n	102	8				
8	31	3 P	25	8 A	28.5	93	0.0	n	176	22	7 A	4 P	.67	6.00
9	31	6 P	25	7 A	28.0	98	0.0	n	159	10	8 P	12 P	.09	2.00
10	37	5 P	19	7 A	28.0	67	11.6	nw	123	15				
11	32	4 P	17	5 A	24.5	94	0.0	n	112	15	8 A	12 P	.65	7.00
12	33	3 P	21	12 P	27.0	84	8.5	ne	182	18				T
13	41	4 P	9	7 A	25.0	66	11.7	w	75	7				
14	43	4 P	9	7 A	26.0	66	11.8	nw	95	13				
15	47	2 P	13	7 A	30.0	66	11.5	s	67	9				
16	39	5 P	33	6 A	36.0	91	1.3	se	97	8			T	T
17	40	0 A	14	12 P	27.0	71	6.8	nw	309	32	4 A	8 A	.19	T
18	16	12 P	6	10 A	11.0	58	9.9	nw	454	48				
19	26	3 P	15	7 A	20.5	66	9.7	nw	549	40				
20	34	3 P	21	7 A	27.5	61	11.0	nw	304	22				
21	39	4 P	17	6 A	28.0	61	12.1	nw	217	22				
22	42	2 P	21	4 A	31.5	65	12.2	nw	215	22				
23	54	5 P	24	6 A	39.0	61	12.2	w	69	10				
24	42	3 P	29	6 A	35.5	83	2.5	sw	37	9	8 P	12 P	.01	
25	43	2 P	33	6 A	38.0	83	2.5	n	125	18			T	
26	44	4 P	33	12 P	38.5	53	12.3	nw	383	28				
27	48	4 P	31	4 A	39.5	59	11.5	nw	191	13				
28	51	4 P	25	6 A	38.0	59	10.8	nw	124	13				
29	49	1 P	33	3 A	41.0	54	8.4	n	152	20				
30	35	3 P	25	8 P	30.0	61	12.5	nw	296	25				
31	48	4 P	24	6 A	36.0	48	12.4	nw	257	18				

*Based on least time required to blow one mile.

SOL KRIMINETSKY, *Observer*

MONTHLY SUMMARY

March 1941	Normal	Extremes
Barometer, in inches (Readings reduced to sea level)		
Maximum 30.47, 7th	30.57	30.96, 1904
Minimum 29.36, 4th	29.24	28.47, 1914
Mean semi-daily 29.917	30.00	
Range 1.11	1.34	2.10, 1914; 0.85, 1915
Air Temperature, in degrees F.		
Highest 54, 23rd	63.8	79.5, 1907, 1921
Lowest 6, 18th	6.1	-7.5, 1906
Mean 30.3	34.4	
Range 48	57.6	
Highest mean daily 41, 29th		
Lowest mean daily 11, 18th		
Mean maximum 39.0	43.2	
Mean minimum 21.6	25.4	
Greatest daily range 34, 14th, 15th		
Least daily range 6, 8th, 9th, 16th		
Precipitation, in inches		
Precipitation 1.63	3.70	7.13, 1899; 0.12, 1915
Snow 15.50	7.47	27, 1899; 0, 1921
Maximum precipitation in 24 hrs. .67, 8th		
Number of days with .01 or more 6	11	17, 1890, 1913, 1936; 3, 1915
Wind, in miles		
Total movement 6449	5944	8182, 1896; 3006, 1905
Greatest daily movement 549, 19th		
Least daily movement 37, 24th		
Mean hourly velocity 8.7	7.7	
Maximum velocity 48, 18th	31.2	48, 1932, 1939
Wind, direction		
Prevailing direction NW	WNW	
North, days 8		
Northeast, days 1		
East, days 0		
Southeast, days 1		
South, days 2		
Southwest, days 1		
West, days 2		
Northwest, days 16		
Weather		
Mean relative humidity, percent 68.2	64.2	
Mean cloudiness, percent 43	51.8	
Number of clear days 20	11	22 1924; 3 19 1
Number of fair days 3	10	17, 1900; 4 1895, 1897, 1936
Number of cloudy days 8	10	21, 1901: 1, 1915
Number hours bright sunshine 256	199	292, 1924; 93, 1901
Percent of possible hours of bright sunshine 69	53.6	

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1910.

REMARKS

The weather during March was clear, cold and windy. The mean temperature was 30.3 degrees, the normal mean being 34.4 degrees. The highest temperature was 54 degrees on the 23rd and the lowest, 6 degrees on the 18th. The domestic heating load was 1074 degree-days compared to a normal of 949 degree-days. The total heating load for the season is now 6155 degree-days, the normal for this period being 5919 degree-days. There were 256 hours of bright sunshine, the normal being 199 hours. The total precipitation was 1.63 inches where as the normal precipitation for March is 3.70 inches. The snowfall was 15.50 inches. Normal snowfall for March is 7.47 inches. The total snowfall for the winter is now 58.50 inches, the normal for this period being 45.62 inches. The total wind movement for the month was 6449 miles, which is well above the average for March. The highest velocity was 48 miles per hour on the 18th.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 628 April 1941

Meteorological Observations

FOR

APRIL

1941

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Rain	Snow
1	47	1 P	28	5 A	37.5	75	3.3	n	68	12				
2	49	2 P	33	6 A	41.0	61	6.0	n	275	20				
3	57	4 P	31	5 A	44.0	54	12.8	n	246	22				
4	60	3 P	29	5 A	44.5	53	12.8	nw	88	10				
5	50	2 P	29	6 A	39.5	81	4.0	nw	75	8	1 P	12 P	.14	
6	56	3 P	34	12 P	45.0	52	10.7	ne	249	25				
7	55	3 P	30	6 A	42.5	34	13.0	n	213	25				
8	62	3 P	30	5 A	46.0	39	13.0	n	221	18				
9	65	2 P	28	4 A	46.5	51	13.0	s	64	9				
10	66	4 P	32	6 A	49.0	46	13.1	n	108	17				
11	65	2 P	31	5 A	48.0	48	13.2	se	113	13				
12	67	3 P	31	5 A	49.0	59	13.2	s	77	12				
13	64	1 P	34	6 A	49.0	56	10.4	se	201	18			T	
14	75	4 P	45	6 A	60.0	76	8.2	nw	172	18				
15	86	2 P	53	6 A	69.5	56	12.0	nw	131	25				
16	74	4 P	53	12 P	63.5	57	13.4	nw	181	18				
17	74	3 P	49	8 A	61.5	83	7.0	s	198	25	6 A	9 A	.11	
18	76	5 P	48	4 A	62.0	54	12.5	nw	162	17				
19	83	3 P	52	6 A	67.5	60	11.1	s	117	14	1 A	3 A	.04	
20	90	2 P	53	5 A	71.5	73	10.3	s	187	25				
21	67	3 P	50	11 P	58.5	57	13.6	nw	305	30				
22	56	3 P	37	5 A	46.5	52	13.7	nw	290	20				
23	61	3 P	28	5 A	44.5	50	12.1	s	155	17	11 P	12 P	.04	
24	57	2 P	38	12 P	47.5	74	7.5	nw	175	20	0 A	4 A	.22	
25	62	1 P	32	6 A	47.0	66	12.6	e	145	13				
26	56	4 P	34	4 A	45.0	68	11.3	ne	144	12				
27	60	4 P	37	1 A	48.5	56	6.7	e	214	28			T	
28	77	5 P	52	6 A	64.5	39	12.1	n	313	25				
29	81	3 P	37	6 A	59.0	35	14.0	se	156	22				
30	82	2 P	48	2 A	65.0	55	12.4	nw	206	20			T	

*Based on least time required to blow one mile.

Sol Kriminetsky, *Observer*

MONTHLY SUMMARY

April 1941		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.43, 12th, 23rd	30.48	30.71, 1911
Minimum	29.62, 20th	29.38	28.99, 1907, 1929
Mean semi-daily	30.071	29.99	
Range	.81	1.11	1.52, 1930; .72, 1919
Air Temperature, in degrees F.			
Highest	90, 20th	79.4	88.5, 1896
Lowest	28, 1st, 9th, 23rd	22.0	8.5, 1923
Mean	52.1	45.7	52, 1921; 41.2, 1926
Range	62	57.4	
Highest mean daily	71.5, 20th		
Lowest mean daily	37.5, 1st		
Mean maximum	66.0	56.8	
Mean minimum	38.2	34.8	
Greatest daily range	44, 29th		
Least daily range	16, 2nd		
Precipitation, in inches			
Precipitation	.55	3.35	6.89, 1929; .76, 1892
Snow		2.17	11, 1891; 0, 1910, 1934
Maximum precipitation in 24 hrs.	.26, 23rd, 24th		
Number of days with .01 or more	5	11	18, 1909; 3, 1892
Wind, in miles			
Total movement	5249	5404	8208, 1908; 3853, 1917
Greatest daily movement	313, 28th		
Least daily movement	64, 9th		
Mean hourly velocity	7.3	7.5	
Maximum velocity	30, 21st	31.4	40, 1935, 1938, 1940
Wind, direction			
Prevailing direction	N	WNW	
North, days	7		
Northeast, days	2		
East, days	2		
Southeast, days	3		
South, days	6		
Southwest, days	0		
West, days	0		
Northwest, days	10		
Weather			
Mean relative humidity, percent	57.3	61.6	
Mean cloudiness, percent	35	51.8	75, 1901; 34, 1925, 1927
Number of clear days	23	11	19, 1911; 3, 1898, 1902
Number of fair days	6	9	18, 1915; 2, 1894, 1901
Number of cloudy days	1	10	22, 1901; 3, 1899, 1924
Number hours bright sunshine	329	220	296, 1911; 103, 1901
Percent of possible hours of bright sunshine	81.8	54.7	
Last Snow	March 17	Apr. 15	Mar. 14, 1910; May 11, 1907

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1940.

REMARKS

April weather was unusual in many respects, being dry, warm and sunny. The rainfall during the month was only .55 of an inch. This is the least rainfall in Amherst for April since 1836. Other dry Aprils were in 1844 and 1892 when .57 and .76 of an inch respectively were recorded. The normal rainfall for April is 3.35 inches. The total rainfall since January 1 is 5.98 inches while the normal for this period is 13.85 inches. The most serious results from the dry spell have been the disastrous forest fires throughout the state.

The mean temperature for the month was 52.1 degrees compared to a normal of 45.7 degrees. This is the highest mean April temperature in Amherst since 1837 except for the year 1839 when a temperature of 52.2 degrees was recorded. The week beginning April 14 was the most unusual period. A mean temperature of 65 degrees was recorded during that week. This has never been equalled during April since 1889 and has been exceeded only three times during the month of May. The highest temperature recorded was 90 degrees on April 20. The heating load during the month was 399 degree-days, the normal being 579 degree-days. The total heating load during the season is now 6554 degree-days, compared to a normal of 6498 degree-days for this period. There were 329 hours of bright sunshine, which is the highest number of hours recorded in April. The normal is 220 hours.

Dr. J. K. Shaw, Research Professor of Pomology, makes the following comments: "Most fruit plants came through the winter in good shape except raspberry canes which were badly killed back, perhaps by the severe cold of December 10. Peach buds survived the winter without excessive killing. March was cold with subnormal precipitation but in early April there came an excessively warm period which caused rapid development of foliage and flower buds. Colder weather followed, causing some injury to flower buds of apples, killing many pistils. The extent of this injury is not yet known but apple orchards in low frosty locations have probably suffered severe damage. No serious injury to peach, pear, and plum buds has been observed. Rarely has vegetation been so far advanced at the end of April. There remains a danger period of two or three weeks during which damage from cold is very possible. April was very dry. Fruit plants have not suffered yet but if heavy rains do not come in May, growth will be severely checked."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 629 May 1941

Meteorological Observations

FOR

MAY

1941

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Rain	Snow
	Degrees	Time	Degrees	Time										
1	58	5 P	44	2 A	51.0	90	5.8	ne	55	10	6 A	11 P	.17	
2	56	1 P	32	12 P	44.0	80	2.5	n	153	20			T	
3	61	5 P	31	5 A	46.0	67	14.1	n	204	18				
4	72	4 P	30	5 A	51.0	49	12.6	nw	124	18				
5	66	5 P	45	12 P	55.5	62	6.9	nw	130	14				
6	79	5 P	35	5 A	57.0	52	14.3	sw	68	9				
7	79	2 P	56	6 A	67.5	71	10.3	s	191	18				
8	74	5 P	58	6 A	66.0	89	5.8	s	109	9	3 A	11 A	.31	
9	66	1 P	52	8 P	59.0	81	3.3	n	110	13	2-30 P	12 P	1.28	
10	65	12 M	42	12 P	53.5	67	9.7	n	261	20	0 A	7 A	.27	
11	64	4 P	36	5 A	50.0	53	14.3	nw	101	15				
12	64	1 P	33	5 A	48.5	58	12.5	sw	68	11				
13	68	4 P	32	5 A	50.0	56	12.9	sw	48	8				
14	69	2 P	36	5 A	52.5	55	12.0	nw	86	11				
15	75	4 P	40	5 A	57.5	51	14.6	nw	128	18				
16	82	4 P	39	5 A	60.5	56	14.6	s	53	7				
17	78	12 M	52	4 A	65.0	76	8.0	s	131	22	1 P	11 P	.05	
18	65	4 P	45	12 P	55.0	48	12.1	nw	359	22				
19	75	2 P	38	5 A	56.5	48	14.7	nw	172	25				
20	83	5 P	40	5 A	61.5	55	14.8	n	70	14				
21	86	3 P	48	4 A	67.0	62	12.5	s	116	10				
22	89	3 P	55	5 A	72.0	72	12.8	sw	90	14				
23	87	2 P	59	12 P	73.0	61	12.3	nw	115	20	8 P	10 P	.06	
24	64	9 A	40	12 P	52.0	79	7.5	n	246	25	12 M	1 P	.24	
25	66	5 P	37	6 A	51.5	51	12.0	nw	246	28				
26	79	3 P	53	3 A	66.0	53	11.5	w	155	15				
27	81	4 P	55	4 A	68.0	73	7.0	nw	158	18			T	
28	79	4 P	53	4 A	66.0	90	8.5	s	69	8	7 A	9 P	.49	
29	72	3 P	50	12 P	61.0	61	10.1	n	251	25				
30	69	3 P	38	6 A	53.5	54	15.0	n	152	22				
31	75	3 P	37	4 A	56.0	60	13.0	sw	31	8				

*Based on least time required to blow one mile.

Sol Kriminetsky, *Observer*

MONTHLY SUMMARY

May 1941	Normal	Extremes
Barometer, in inches (Readings reduced to sea level)		
Maximum 30.18, 20th, 21st	30.39	30.62, 1936
Minimum 29.40, 17th	29.51	29.10, 1938
Mean semi-daily 29.905	29.96	
Range 0.78	0.88	
Air Temperature, in degrees F.		
Highest 89, 22nd	86.1	94.5, 1896, 1911
Lowest 30, 4th	31.2	24.0, 1900
Mean 57.9	57.1	
Range 59	54.9	
Highest mean daily 73, 23rd		
Lowest mean daily 44, 2nd		
Mean maximum 72.5		
Mean minimum 43.3		
Greatest daily range 44, 6th		
Least daily range 14, 1st, 9th		
Precipitation, in inches		
Precipitation 2.87	3.60	7.44, 1931; .48, 1903
Maximum precipitation in 24 hrs. 1.55 9th, 10th		
Number of days with .01 or more 8	12	20, 1901; 5, 1903
Wind, in miles		
Total movement 4250	4504	5946, 1907; 2180, 1894
Greatest daily movement 359 18th		
Least daily movement 31, 31st		
Mean hourly velocity 5.7	6.1	
Maximum velocity 28, 25th	28.8	45, 1935
Wind, direction		
Prevailing direction NW	W	
North, days 8		
Northeast, days 1		
East, days 0		
Southeast, days 0		
South, days 6		
Southwest, days 5		
West, days 1		
Northwest, days 10		
Weather		
Mean relative humidity, percent 63.9	60.7	
Mean cloudiness, percent 46	52.1	70, 1901, 1902; 30, 1923
Number of clear days 20	11	20, 1923; 0, 1927
Number of fair days 9	11	17, 1907, 1926; 5, 1923
Number of cloudy days 2	9	20, 1927; 3, 1903, 1922
Number hours bright sunshine 338	252	334, 1922; 137, 1927
Percent of possible hours of bright sunshine 74.6	55.6	
Thunder and lightning 23rd		
Last frost May 13th	May 14	June 8, 1932; Apr. 23, 1904

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1940.

REMARKS

The weather during May continued dry but in other respects was quite normal. The rainfall during the month was 2.87 inches, the normal for May being 3.60 inches. There was only one good rain during the month, on the 8th, 9th and 10th, hence the drouth has continued to the end of the month. The total rainfall since January 1 is now 8.85 inches, while the normal for this period is 17.45 inches.

The mean temperature for the month was 57.9 degrees which is 0.8 of a degree higher than usual. The highest temperature was 89 degrees on the 22nd and the lowest, 30 degrees on the 4th. A temperature of 32 degrees on the 13th brought the last frost of the month near the observatory, although there were later frosts in the low part of the town. The domestic heating load during the month was 247 degree-days. The normal for May is 287 degree-days. The total heating load for the season is now 6801 degree-days, while the normal for the period is 6785 degree-days. There were 338 hours of bright sunshine which is the largest number of hours ever recorded in May. No high winds were recorded.

Dr. J. K. Shaw, research professor of Pomology, makes the following report: "The month of May was characterized by a continued deficiency of rainfall. This has not as yet caused any apparent injury to fruit trees which are still making good growth, but there will be a short hay crop even if there should be ample rain soon. It also sets the stage for more severe damage should rainfall continue to be low. Fruit trees bloomed ten days or more earlier than normal. Frosts killed a few apple blossoms but not enough to interfere with the crop unless it may be in orchards in frosty locations. Considerable cool weather has delayed the progress of vegetation somewhat but it continues to be more advanced than normal. There were few wet periods favorable to apply scab infection, and scab control should be easier than last year. Strawberries are beginning to ripen a week or more earlier than normal. We may expect a light raspberry crop because of cold injury which probably was caused by the cold of December 4 and not on the 10th as stated last month."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 630 June 1941

Meteorological Observations

FOR

JUNE

1941

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Rain	Snow
1	62	2 P	55	9 A	58.5	92	2.3	se	106	10	7 A	11:30A	.12	
2	78	5 P	55	5 A	66.5	70	11.5	n	81	8				
3	82	3 P	47	5 A	64.5	65	15.1	w	44	7				
4	68	12 M	52	5 A	60.0	78	5.7	se	65	12	5 P	12 P	.25	
5	58	6 P	55	1 A	56.5	89	0.0	n	176	17	0 A	5 P	.87	
6	76	5 P	52	5 A	64.0	65	13.8	n	162	17				
7	84	4 P	47	5 A	65.5	69	12.2	s	71	6				
8	88	1 P	61	12 P	74.5	67	12.7	w	200	28				
9	72	4 P	53	5 A	62.5	57	15.2	nw	443	32				
10	72	2 P	50	4 A	61.0	48	14.5	nw	312	32				
11	70	2 P	45	4 A	57.5	64	15.2	n	227	25				
12	72	2 P	44	5 A	58.0	65	12.0	s	89	11	6 P	7 P	.01	
13	60	3 P	53	6 A	56.5	88	0.0	s	90	9	4 A	12 P	.40	
14	71	4 P	53	0 A	62.0	94	2.4	s	38	7	0 A	12 P	.37	
15	78	2 P	57	5 A	67.5	80	11.0	s	100	18	0 A	12 P	1.84	
16	71	4 P	58	12 P	64.5	89	6.0	s	52	9	0 A	8 A	.27	
17	82	3 P	53	5 A	67.5	81	11.4	w	50	8	7 P	8 P	.20	
18	78	1 P	55	12 P	66.5	81	7.8	nw	74	12				
19	88	5 P	53	5 A	70.5	66	15.3	nw	69	14				
20	93	3 P	63	5 A	78.0	60	15.3	sw	66	11				
21	91	1 P	63	5 A	77.0	61	15.3	w	60	5				
22	93	4 P	62	4 A	77.5	58	15.3	nw	114	14				
23	67	6 P	51	12 P	59.0	80	1.4	ne	120	13	2 A	12 M	.80	
24	83	4 P	48	5 A	65.5	68	13.0	w	95	12				
25	76	4 P	55	6 A	65.5	50	15.3	nw	145	15				
26	88	3 P	54	5 A	71.0	67	15.3	se	164	17				
27	94	3 P	65	4 A	79.5	61	15.3	se	176	13				
28	93	2 P	68	5 A	80.5	68	14.0	s	195	17				
29	91	4 P	70	12 P	80.5	70	11.3	se	147	12			T	
30	89	2 P	65	5 A	77.0	71	12.4	n	108	11	7 P	8 P	1.00	

*Based on least time required to blow one mile.

J. F. Hanson, *Observer*

MONTHLY SUMMARY

June 1941		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.21, 12th, 13th	30.30	30.54, 1889
Minimum	29.64, 8th	29.55	29.24, 1902
Mean semi-daily	29.954	29.95	
Range	0.57	0.75	
Air Temperature, in degrees F.			
Highest	94, 27th	91.2	101, 1919
Lowest	44, 12th	40.0	34, 1891
Mean	67.2	65.7	
Range	50	51.3	
Highest mean daily	80.5, 28th, 29th		
Lowest mean daily	56.5, 5th, 13th		
Mean maximum	78.9		
Mean minimum	55.4		
Greatest daily range	37, 7th		
Least daily range	3, 5th		
Precipitation, in inches			
Precipitation	6.13	3.75	9.68, 1922; 0.76, 1908
Maximum precipitation in 24 hrs.	2.11, 14th, 15th		
Number of days with .01 or more	11	11	17, 1922; 4, 1908
Wind, in miles			
Total movement	3839	3585	4571, 1908; 1409, 1906
Greatest daily movement	443, 9th		
Least daily movement	38, 14th		
Mean hourly velocity	5	5.0	
Maximum velocity	32, 9th, 10th	24.6	48, 1939
Wind, direction			
Prevailing direction	WSW	WSW	
North, days	5		
Northeast, days	1		
East, days	0		
Southeast, days	5		
South, days	7		
Southwest, days	1		
West, days	5		
Northwest, days	6		
Weather			
Mean relative humidity, percent	70.7	66.9	
Mean cloudiness, percent	57	51.1	71, 1903; 28, 1908
Number of clear days	22	10	22, 1908; 1, 1927
Number of fair days	3	12	23, 1912; 4, 1895, 1903
Number of cloudy days	5	8	22, 1903; 1, 1923
Number hours bright sunshine	328	257	362, 1908; 102, 1903
Percent of possible hours of bright sunshine	71.8	54.0	
Thunder and lightning	14th, 15th, 17th 23rd, 30th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1940.

REMARKS

June weather was warmer than usual, with more precipitation and sunshine than normal.

The mean temperature for the month was 67.2 degrees, compared to the normal for June of 65.7 degrees. The highest temperature was 94 on the 27th and the lowest, 44 on the 12th. Two warm spells occurred during the month, the first from the 19th to the 23rd and the second from the 26th to the end of the month. Most of the daily maximum temperatures during these warm spells ranged in the 90's. While these periods were very warm, they were not as prolonged and as humid as the 8-day heat wave of June, 1938, and the 10-day period in 1933. The domestic heating load for the month was 60 degree-days. The normal for June is 69 degree-days. The total load for the heating season was 6861 degree-days, while the normal for the period is 6854 degree-days.

The total rainfall during the month was 6.13 inches which reduced to some extent the large deficiency in rainfall which has prevailed since the first of the year. The normal for June is 3.75 inches. The total rainfall since January 1 is now 14.98 inches, while the normal for this period is 21.20 inches. There were 328 hours of sunshine. This record has been exceeded only twice in June—360 hours in 1923 and 362 in 1908. The normal for June is 257 hours. The total wind movement for June was slightly higher than normal, although the four-day wind travel from the 8th to the 11th was unusually high and steady.

Dr. J. K. Shaw, research pomologist, gives the following report on the progress of vegetation: "A few timely rains maintained soil moisture and increased the hay crop above the prospects in early June. Yet there was not enough continued wet weather for extensive apple scab development, so that control was much easier than last year. Apples set well and the McIntosh crop promises to be good, but Baldwins are reported a light crop due to light bloom. The strawberry harvest is about over and the crop was average. The progress of vegetation during June was not far from normal."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 631 July, 1941

Meteorological Observations

FOR

JULY

1941

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Rain	Snow
1	91	2 P	69	6 A	80.0	84	5.0	s	112	18	3 P	5 P	.02	
2	93	1 P	69	12 P	81.0	66	14.4	nw	149	18	1 P	2 P	T	
3	79	2 P	59	5 A	69.0	61	11.0	s	103	8	10 P	12 P	T	
4	69	6 P	61	5 A	65.0	84	1.0	sw	69	6	0 A	8 A	.04	
5	83	4 P	59	6 A	71.0	69	11.5	s	71	8				
6	83	12 M	57	6 A	70.0	67	15.2	se	146	12				
7	82	3 P	63	0 A	72.5	82	4.5	s	194	17	2 A	3 A	.01	
8	85	1 P	66	12 P	75.5	76	9.6	s	195	15	1 A	5 A	.32	
9	76	3 P	61	5 A	68.5	73	7.3	nw	135	20				
10	86	4 P	57	5 A	71.5	52	15.1	sw	102	9				
11	83	4 P	61	4 A	72.0	70	9.6	se	163	14				
12	83	1 P	69	4 A	76.0	87	4.9	s	117	8	3-30 A	3 P	.63	
13	81	5 P	63	12 P	72.0	80	9.3	n	77	12	4 P	5 P	.01	
14	82	3 P	56	5 A	69.0	64	15.0	e	113	12				
15	82	4 P	52	6 A	67.0	62	14.8	se	95	10				
16	82	4 P	53	6 A	67.5	69	15.0	s	86	8				
17	73	5 P	63	12 P	68.0	93	0.4	s	114	11	7 A	12 M	.50	
18	81	4 P	52	5 A	66.5	71	13.5	s	95	10			T	
19	83	5 P	65	12 P	74.0	82	8.7	s	224	15			T	
20	76	3 P	55	12 P	65.5	63	14.9	nw	143	17				
21	82	3 P	49	5 A	65.5	62	14.5	w	69	10				
22	84	2 P	54	5 A	69.0	62	11.0	s	71	8				
23	86	5 P	62	6 A	74.0	72	9.4	w	45	4			T	
24	92	3 P	67	6 A	79.5	67	10.4	s	70	14				
25	91	2 P	64	6 A	77.5	76	10.0	s	125	25	7 P	9 P	.44	
26	86	4 P	62	12 P	74.0	68	14.6	n	128	13				
27	84	5 P	55	5 A	69.5	60	12.3	nw	59	7				
28	73	4 P	61	12 P	67.0	91	0.0	nw	81	20	8 A	9 P	1.90	
29	82	3 P	59	6 A	71.5	74	14.6	n	109	6				
30	72	6 P	61	1 A	66.5	92	0.4	se	106	9	6-30 A	8 P	.17	
31	78	4 P	67	4 A	72.5	80	2.1	e	81	7				

*Based on least time required to blow one mile.

J. F. HANSON, *Observer*

MONTHLY SUMMARY

July 1941		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.24, 14th	30.27	30.50, 1892
Minimum	29.62, 28th	29.59	29.27, 1932
Mean semi-daily	29.936	29.96	
Range	0.62	0.68	0.97, 1892; 0.47, 1938
Air Temperature, in degrees F.			
Highest	93, 2nd	93.9	104, 1911
Lowest	49, 21st	46.4	40, 1890, 1898
Mean	71.2	70.8	74.7, 1921; 66.3, 1891
Range	44	47.7	
Highest mean daily	81, 2nd		
Lowest mean daily	65, 4th		
Mean maximum	82.0		
Mean minimum	60.4		
Greatest daily range	33, 21st		
Least daily range	8, 4th		
Precipitation, in inches			
Precipitation	4.04	4.10	14.51, 1897; 0.70, 1929
Maximum precipitation in 24 hrs.	1.90, 28th		
Number of days with .01 or more	10	11	20, 1915; 4, 1924
Wind, in miles			
Total movement	3447	3422	5097, 1909; 1109, 1894
Greatest daily movement	224, 19th		
Least daily movement	45, 23rd		
Mean hourly velocity	4.6	4.6	
Maximum velocity	25, 25th	28.7	44, 1936
Wind, direction			
Prevailing direction	S	SW	
North, days	3		
Northeast, days	0		
East, days	2		
Southeast, days	4		
South, days	13		
Southwest, days	2		
West, days	2		
Northwest, days	5		
Weather			
Mean relative humidity, percent	72.9	68.4	
Mean cloudiness, percent	57	50.9	69, 1914; 31, 1924
Number of clear days	16	10	22, 1923; 0, 1915
Number of fair days	10	14	24, '09, '21; 5, '89, '23, '28, '36
Number of cloudy days	5	7	18, 1889; 0, 1910
Number hours bright sunshine	300	268	371, 1910; 180, 1931
Percent of possible hours of bright sunshine	64.9	58	
Thunder and lightning	1st, 2nd, 8th, 12th 13th, 25th, 28th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1940.

REMARKS

The weather during July was very near normal in most respects. The mean temperature for the month was 71.2 degrees, the normal being 70.8 degrees. The highest temperature was 93 degrees on the 2nd and the lowest, 49 degrees on the 21st. The rainfall during the month was 4.04 inches which is .06 less than normal. The heaviest rainfall of the month was 1.90 inches on the 28th. The total rainfall since January 1 is now 19.02 inches, while the normal for this period is 25.30 inches. There were 300 hours of bright sunshine compared to a normal of 268 hours. The mean relative humidity was 72.9 per cent while the normal for July is 68.4 per cent.

Dr. J. K. Shaw reports as follows: "The weather during July continued to be favorable for the development of fruit plants. Timely showers supplied ample soil moisture for growth of both trees and fruits. A heavy shower accompanied with high winds on July 28th damaged a few trees and blew over some corn and tobacco. The dry spring was followed by sufficient precipitation and seems to have given conditions very favorable to growth. Apple trees have grown much better than last year. High temperatures in early spring which brought trees in bloom very early still show their effect in unusually early maturity. The blueberry crop ripened nearly three weeks earlier than last year."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 632 August 1941

Meteorological Observations

FOR

AUGUST

1941

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	88	5 P	65	3 A	76.5	75	9.0	nw	68	7	2 A	5 A	.08	
2	86	4 P	67	5 A	76.5	61	13.5	n	112	14				
3	83	2 P	58	3 A	70.5	62	13.8	n	135	18				
4	84	6 P	55	5 A	69.5	68	14.2	nw	50	4				
5	86	3 P	57	5 A	71.5	68	14.2	nw	99	18			T	
6	85	2 P	57	6 A	71.0	65	14.3	nw	73	10				
7	86	4 P	53	6 A	69.5	62	14.3	nw	77	10				
8	91	2 P	53	6 A	72.0	62	14.2	w	63	9				
9	85	5 P	57	3 A	71.0	73	6.8	s	54	8			T	
10	78	4 P	52	12 P	65.0	51	14.2	n	205	25			T	
11	80	2 P	46	6 A	63.0	56	10.6	s	92	13	11-30 P	12 P	.01	
12	83	1 P	53	12 P	68 0	59	11.1	nw	267	40	0 A	12 30 A	.04	
13	68	2 P	45	5 A	56.5	51	13.2	nw	254	32				
14	74	2 P	46	5 A	60.0	57	10.7	sw	123	12				
15	75	11 A	59	3 A	67.0	77	1.9	s	177	15	12 M	12 P	.06	
16	80	3 P	60	12 P	70.0	74	8.0	nw	160	17	2-30 A	3 A	.17	
17	71	3 P	49	12 P	60.0	55	13.9	nw	243	22	0 A	2 A	.17	
18	80	3 P	41	6 A	60.5	64	12.0	w	78	8				
19	70	3 P	60	4 A	65.0	93	0 0	s	151	11	3-30 A	10 A	.47	
20	78	3 P	52	12 P	65.0	67	13.7	nw	145	14				
21	79	3 P	47	6 A	63.0	67	13.2	s	62	6				
22	79	3 P	57	3 A	68.0	71	7.2	s	147	13				
23	81	1 P	56	12 P	70.0	68	10.4	sw	117	13			T	
24	81	3 P	47	6 A	64.0	63	12.4	sw	82	10				
25	70	12 M	59	5 A	64.5	91	0.0	s	127	10	9 A	6 P	.34	
26	89	4 P	67	5 A	78.0	72	11.8	w	156	17				
27	75	2 P	53	12 P	64.0	53	13.5	nw	244	25				
28	70	3 P	45	6 A	57.5	54	12.9	nw	155	22				
29	75	5 P	42	6 A	58.5	63	13.5	w	64	9			T	
30	88	3 P	60	0 A	74.0	68	11.0	sw	144	12			T	
31	80	11 A	61	12 P	70.5	86	2.5	se	106	10	1-30 A	12 P	.45	

*Based on least time required to blow one mile.

J. F. HANSON, *Observer*

MONTHLY SUMMARY

August 1941		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.36, 29th	30.32	30.50, 1934
Minimum	29.49, 12th	29.61	28.87, 1930
Mean semi-daily	29.920	30.00	
Range	0.87	0.71	
Air Temperature, in degrees F.			
Highest	91, 8th	91.6	100, 1918
Lowest	41, 18th	43.4	37, 1894, 1908
Mean	67.1	68.6	34, 1940
Range	50	48.1	
Highest mean daily	78, 26th		
Lowest mean daily	56.5, 13th		
Mean maximum	80.0		
Mean minimum	54.2		
Greatest daily range	39, 18th		
Least daily range	10, 19th		
Precipitation, in inches			
Precipitation	1.79	4.08	8.40, 1928; .31, 1894
Maximum precipitation in 24 hrs.	0.47, 19th		
Number of days with .01 or more	9	11	16, 1892, 1933; 4, 1899
Wind, in miles			
Total movement	4030	3127	4,271, 1910; 1,920, 1894
Greatest daily movement	267, 12th		
Least daily movement	54, 9th		
Mean hourly velocity	5.4	4.2	
Maximum velocity	40, 12th	22.7	35, 1915
Wind, direction			
Prevailing direction	W	SW	
North, days	3		
Northeast, days	0		
East, days	0		
Southeast, days	1		
South, days	7		
Southwest, days	4		
West, days	4		
Northwest, days	12		
Weather			
Mean relative humidity, percent	66.3	70.2	
Mean cloudiness, percent	47.6	49.7	67, 1901; 27, 1923
Number of clear days	23	9	21, 1939; 0, 1915, 1929
Number of fair days	4	13	25, 1912; 3, 1939
Number of cloudy days	4	9	18, 1901, '28; 2, 1910, '23
Number hours bright sunshine	332	237	317, 1921; 152, 1915, 1929
Percent of possible hours of bright sunshine	89	55.2	
Thunder and lightning	10th, 17th, 23rd, 31st		
First frost		Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1940.

REMARKS

August was slightly cooler than normal, had less rain than usual and had an unusually large amount of sunshine. The mean temperature for the month was 67.1 degrees which is 1.5 degrees cooler than normal. The highest temperature during the month was 91 degrees on the 8th and the lowest 41 degrees on the 18th. The mean temperature for the three summer months, June, July and August, was 68.5 degrees, while the normal mean temperature for these months is 68.7 degrees. The highest temperature during the summer was 94 degrees on June 27. The total rainfall during August was 1.79 inches, the normal being 4.08 inches. The total rainfall since January 1st is 20.81 inches while usually we get 29.38 inches during this period. There were 332 hours of bright sunshine compared to a normal of 237 hours. This is the largest amount of sunshine ever recorded in August at this station. The nearest approach to this high amount was 317 hours in 1921. The mean relative humidity was 66.3 per cent, the normal being 70.2 per cent. The total wind movement was 4030 miles. The normal wind movement for August is 3127 miles. The highest wind velocity was 40 miles per hour on the 12th.

Dr. J. K. Shaw makes the following report: "The progress of vegetation during August has been about normal. The effects of the early start in the spring are still seen in the early ripening of most varieties. There are still some signs of a low water supply but not more than in most seasons. Apple scab is less prevalent than usual, partly because of little weather favorable to infection last spring. Vegetative growth of most fruit plants through the season has been better than usual. This suggests that a dry spring followed by adequate summer rainfall is favorable to fruit plants, if not for the hay crop."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 633 September 1941

Meteorological Observations

FOR

SEPTEMBER

1941

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	89	1 P	60	3 A	74.5	74	10.4	nw	196	28	0 A	8 A	2.04	
2	74	2 P	50	12 P	62.0	62	13.1	nw	187	11				
3	78	3 P	44	5 A	61.0	64	13.0	sw	68	7				
4	76	2 P	46	4 A	61.0	82	3.8	s	76	10				
5	83	3 P	64	6 A	73.5	86	3.4	s	135	9				
6	86	3 P	64	12 P	75.0	62	13.0	nw	202	22	0 A	8 A	.01	
7	79	1 P	55	12 P	67.0	49	12.9	nw	252	28				
8	72	3 P	51	6 A	61.5	64	12.9	nw	153	14				
9	75	3 P	48	5 A	61.5	80	8.0	se	83	9				
10	91	3 P	66	4 A	78.5	79	5.5	s	141	14	8 P	12 P	.78	
11	70	1 P	52	12 P	61.0	57	11.2	nw	128	28	0 A	1 A	.01	
12	68	3 P	42	6 A	55.0	63	12.7	nw	144	20				
13	71	3 P	38	6 A	54.5	69	12.6	nw	58	6				
14	79	2 P	42	5 A	60.5	71	12.6	sw	118	14				
15	86	2 P	55	6 A	70.5	67	12.5	sw	162	12				
16	91	1 P	65	3 A	78.0	67	11.2	se	166	10				
17	84	3 P	64	6 A	74.0	55	11.4	nw	224	25				
18	78	2 P	54	12 P	66.0	52	12.4	n	173	15				
19	70	4 P	42	7 A	56.0	67	12.3	nw	105	10				
20	71	4 P	34	7 A	52.5	62	12.3	s	64	8				
21	80	4 P	34	7 A	57.0	68	9.7	s	85	7				
22	86	3 P	49	6 A	67.5	73	8.8	s	84	7				
23	86	2 P	46	7 A	66.0	70	10.0	n	101	13				
24	78	3 P	50	12 P	64.0	64	12.0	n	148	11				
25	74	4 P	42	5 A	58.0	70	7.8	s	73	10				
26	71	3 P	48	12 P	59.5	59	11.9	nw	203	20				
27	71	3 P	37	7 A	54.0	71	12.0	s	54	4				
28	75	4 P	38	5 A	56.5	80	10.7	s	109	13			T	
29	59	5 P	33	12 P	46.0	60	3.9	n	240	25				
30	60	12 P	28	5 A	44.0	64	3.0	s	73	17	11:30 P	12 P	.04	
31														

*Based on least time required to blow one mile.

SOL KRIMINETSKY, *Observer*

MONTHLY SUMMARY

September, 1941		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.43, 20th	30.45	30.65, 1924
Minimum	29.58, 6th	29.57	28.41, 1938
Mean semi-daily	30.087	30.06	
Range	0.85	.88	1.99, 1938; .57, 1910
Air Temperature, in degrees F.			
Highest	91, 10th, 16th	87.7	97, 1895, 1929
Lowest	28, 30th	33.2	24.5, 1914
Mean	62.5	61.7	
Range	63	54.5	
Highest mean daily	78 5, 10th		
Lowest mean daily	44, 30th		
Mean maximum	77.0		
Mean minimum	48.0		
Greatest daily range	40, 23rd		
Least daily range	18, 11th		
Precipitation, in inches			
Precipitation	2 88	4.26	14.55, 1938; .52, 1914
Maximum precipitation in 24 hrs.	2.04, 1st		
Number of days with .01 or more	5	10	16, 1933; 3, 1903
Wind, in miles			
Total movement	3945	3271	4,686, 1896; 1,414, 1894
Greatest daily movement	252, 7th		
Least daily movement	54, 27th		
Mean hourly velocity	5.5	4.5	
Maximum velocity	28, 1st, 7th, 11th	25.9	80, 1938
Wind, direction			
Prevailing direction	W	WSW	
North, days	4		
Northeast, days	0		
East, days	0		
Southeast, days	2		
South, days	10		
Southwest, days	3		
West, days	0		
Northwest, days	11		
Weather			
Mean relative humidity, percent	67.0	73 6	
Mean cloudiness, percent	36.0	49.9	70, 1934; 27, 1908, 1914
Number of clear days	23	10	19, 1932; 2, 1907, 1928
Number of fair days	4	10	19, 1908; 3, 1889
Number of cloudy days	3	10	20, 1934; 4, 1908, 1916
Number hours bright sunshine	307	201	255, 1916; 106, 1934
Percent of possible hours of bright sunshine	82.3	54.9	
Thunder and lightning	1st, 10th		
First frost	Sept 30	Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1940.

REMARKS

The weather during September was dry, warm and clear. The total rainfall during the month was 2.88 inches compared to a normal of 4.26 inches. The total rainfall since January 1 has been 23.69 inches, while the normal rainfall for this period is 33.62 inches. This deficiency of almost 10 inches has resulted in acute water shortage in wells and reservoirs. The rainfall since April 1 has been 18.26 inches or 4.85 inches less than normal for that period with some damage to crops.

The mean temperature for the month was 62.5 degrees, the normal being 61.7 degrees. There was a light frost on the 20th on nearby lowland and a heavy frost on the 30th with a temperature of 28 degrees at the observatory. The normal date for the first frost is Sept. 21st. The domestic heating load for the month was 149 degree-days, which is normal for September. There were a total of 307 hours of bright sunshine, which is the largest amount of sunshine ever recorded at this station in September.

Dr. J. K. Shaw of the Pomology Department makes the following report: "The weather during September has been very dry. Leaves are dropping from some apple trees prematurely. This may result in poor foliation in the spring. Unless there are abundant rains soon, fruit plants will go into the winter in poor condition. The lack of rainfall has not interfered with the crop of this year and plenty of sunshine has favored good color development. The apple crop is of very good quality, but not large. There seems to be good fruit bud formation for next year's crop."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 634 October 1941

Meteorological Observations

FOR

OCTOBER

1941

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 48.5″ N. Longitude, 72° 31′ 10″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	70	2 P	51	12 P	60.5	69	2.2	nw	208	18	0 A	2:30 A	.42	
2	73	3 P	41	6 A	57.0	72	9.4	sw	56	4				
3	67	12 P	49	3 A	58.0	96	0.0	sw	36	8	5 A	12 P	.42	
4	82	3 P	62	12 P	72.0	77	10.6	w	159	15	0 A	5 A	.04	
5	88	3 P	59	2 A	73.5	86	5.5	sw	99	25	5 A	8 A	.17	
6	77	12 M	58	12 P	67.5	77	9.6	n	180	18				
7	60	12 P	53	4 A	56.5	89	0.0	se	78	9			T	
8	68	1 P	60	7 A	64.0	54	7.6	nw	295	32				
9	65	4 P	44	6 A	54.5	63	9.6	nw	125	20				
10	60	2 P	46	12 P	53.0	85	0.0	se	142	22	4 A	8 P	.72	
11	54	2 P	38	12 P	46.0	63	6.0	nw	316	32				
12	64	12 M	37	1 A	50.5	66	3.3	se	121	15				
13	69	4 P	41	6 A	55.0	63	11.2	nw	76	7				
14	67	2 P	41	4 A	54.0	84	0.3	sw	139	18			T	
15	69	1 P	48	11 P	58.5	57	5.4	w	114	10				
16	56	12 M	36	12 P	46.0	56	10.1	nw	249	25				
17	65	4 P	28	6 A	46.5	66	11.0	w	55	5				
18	58	2 P	28	2 A	43.0	84	0.0	s	102	10	4 P	11 P	.08	
19	63	3 P	44	12 P	53.5	64	10.9	n	134	17				
20	67	4 P	32	7 A	49.5	67	10.9	w	55	5				
21	70	3 P	35	7 A	52.5	69	2.7	nw	67	20				
22	70	4 P	46	12 P	58.0	63	9.7	nw	152	10				
23	61	4 P	43	7 A	52.0	72	9.1	s	208	32	11 A	12 M	.01	
24	54	2 P	34	7 A	44.0	48	7.5	nw	257	18			T	
25	47	11 A	35	12 P	41.0	57	1.8	w	220	25				
26	50	4 P	26	7 A	38.0	57	9.1	s	142	13				
27	69	2 P	44	0 A	56.5	80	0.8	s	232	22	4 P	10 P	.27	
28	64	2 A	33	12 P	48.5	80	1.4	nw	244	22			T	
29	47	4 P	24	7 A	35.5	66	7.8	n	126	12				
30	41	4 P	29	6 A	35.0	77	0.0	n	55	6			T	
31	54	3 P	38	0 A	46.0	85	0.5	n	64	9			T	

*Based on least time required to blow one mile.

SOL KRIMINETSKY, *Observer*

MONTHLY SUMMARY

October, 1941		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.60, 29th, 30th	30.53	30.68, 1929
Minimum	29.48, 23rd	29.42	29.00, 1926
Mean semi-daily	30.059	30.06	
Range	1.12	1.11	1.47, 1926; .76, 1899
Air Temperature, in degrees F.			
Highest	88, 5th	79.4	90.5, 1908
Lowest	24, 29th	23.4	17, 1936
Mean	52.5	50.5	56.4, 1920; 43.2, 1890
Range	64	56.0	
Highest mean daily	73.5, 5th		
Lowest mean daily	35, 30th		
Mean maximum	63.5		
Mean minimum	41.4		
Greatest daily range	37, 17th		
Least daily range	7, 7th		
Precipitation, in inches			
Precipitation	2.13	3.29	8.81, 1911; .01, 1924
Maximum precipitation in 24 hrs.	.72, 10th		
Number of days with .01 or more	8	9	15, 1913; 1, 1897, 1924
Wind, in miles			
Total movement	4506	4074	5,467, 1910; 2,540, 1894
Greatest daily movement	295, 8th		
Least daily movement	36, 3rd		
Mean hourly velocity	6.0		
Maximum velocity	32, 23rd	29.5	42, 1937
Wind, direction			
Prevailing direction	WNW	W	
North, days	6		
Northeast, days	0		
East, days	0		
Southeast, days	2		
South, days	4		
Southwest, days	4		
West, days	5		
Northwest, days	10		
Weather			
Mean relative humidity, percent	70.7	69.0	
Mean cloudiness, percent	56	48	67, 1932; 18, 1924
Number of clear days	13	10	21, 1938; 1, 1911
Number of fair days	4	10	17, 1924; 3, 1938
Number of cloudy days	14	11	19, 1896; 3, 1924
Number hours bright sunshine	165	175.0	232, '23, '38; 91, 1913
Percent of possible hours of bright sunshine	48	51.3	
Thunder and lightning			
First frost	Sept. 30	Sept. 21	Aug. 22, '94, '95; Oct. 15, '39

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1940.

REMARKS

The drouth continued through October with a rainfall of only 2.13 inches, the normal for October being 3.29 inches. The total precipitation since January 1 is now 25.82 inches whereas the normal for this period is 36.91 inches. Reports have come in of additional wells going dry during the month.

The mean temperature of the month was 52.5 degrees which is 2 degrees higher than normal. The highest temperature was 88 degrees on the 5th and the lowest 24 degrees on the 29th. The domestic heating load was 407 degree-days, the normal for October being 456 degree-days. There were 165 hours of bright sunshine compared to a normal of 175 hours.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 635 November 1941

Meteorological Observations

FOR

NOVEMBER

1941

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	46	8 P	42	8 A	44.0	93	0.0	nw	77	15	0 A	12 P	2.06	
2	56	2 P	44	7 A	50.0	82	0.6	w	84	15	0 A	4 A	.03	
3	58	2 P	38	12 P	48.0	65	6.6	w	169	17				
4	60	3 P	29	7 A	44.5	69	8.8	s	82	13				
5	63	3 P	40	7:30 A	51.5	75	3.3	se	68	6				
6	51	7 P	42	6 A	46.5	93	0.0	n	81	9	7 A	12 P	1.06	
7	57	2 P	43	12 P	50.0	88	9.6	n	127	18	0 A	3 P	.49	
8	55	2 P	36	7 A	45.5	74	2.0	s	116	10			T	
9	51	2 P	30	6 A	40.5	76	2.5	s	81	9	5 P	12 P	.29	
10	51	1 P	32	12 P	41.5	77	4.2	nw	72	10				
11	45	11 A	29	6 A	37.0	71	0.5	w	80	13				
12	44	2 P	26	12 P	35.0	60	7.6	nw	246	32				T
13	40	2 P	24	2 A	32.0	69	0.0	nw	49	5				
14	58	3 P	27	6 A	42.5	74	1.6	sw	66	11				
15	59	2 P	35	7 A	47.0	77	4.2	s	75	11				
16	57	12 M	34	12 P	45.5	62	5.0	nw	214	39	1 P	1:30 P	.04	
17	48	4 P	25	7 A	36.5	64	9.7	n	168	15				
18	62	2 P	28	0 A	45.0	58	5.7	se	150	13				
19	74	3 P	37	7 A	55.5	67	6.9	se	89	9				
20	72	1 P	45	7 A	58.5	78	0.0	s	176	20				
21	48	12 M	35	9 P	41.5	54	7.8	nw	340	40				
22	47	4 P	27	7 A	37.0	68	8.2	sw	101	15				
23	46	7:30 P	30	0 A	38.0	88	0.0	nw	42	18	5 A	12 M	.32	
24	42	1 P	26	12 P	34.0	57	7.8	nw	309	32				
25	44	2 P	19	7 A	31.5	70	9.1	s	118	11				
26	49	1 P	32	0 A	40.5	60	2.8	s	201	22				T
27	52	1 P	32	12 P	42.0	58	4.3	s	183	28				
28	51	2 P	26	5 A	38.5	63	9.4	nw	131	20				
29	64	2 P	25	3 A	44.5	64	8.8	s	93	12				
30	51	0 A	28	12 P	39.5	68	7.0	n	214	25				

*Based on least time required to blow one mile.

SOL KRIMINETSKY, *Observer*

MONTHLY SUMMARY

November, 1941		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.54, 28th	30.59	30.87, 1932
Minimum	29.40, 7th	29.30	28.73, 1904
Mean semi-daily	30.025	30.05	
Range	1.14	1.29	1.84, 1904; .94, 1905
Air Temperature, in degrees F.			
Highest	74, 19th	66.0	75, 1924, 1938
Lowest	19, 25th	12.9	-4, 1938
Mean	42.8	38.9	44.1, 1931; 33.6, 1901
Range	55	53.0	
Highest mean daily	58.5, 20th		
Lowest mean daily	31.5, 25th		
Mean maximum	53.4		
Mean minimum	32.2		
Greatest daily range	39, 29th		
Least daily range	4, 1st		
Precipitation, in inches			
Precipitation	4.29	3.41	8.64, 1927; .63, 1917
Snow	Trace	2.34	13.50, 1938
Maximum precipitation in 24 hrs.	2.06, 1st		
Number of days with .01 or more	7	9	22, 1921; 2, 1904
Wind, in miles			
Total movement	4002	4531	5,978, 1906; 2,589, 1889
Greatest daily movement	340, 21st		
Least daily movement	42, 23rd		
Mean hourly velocity	5.6	6.3	
Maximum velocity	40, 21st	30.3	44, 1938
Wind, direction			
Prevailing direction	W	WNW	
North, days	4		
Northeast, days	0		
East, days	0		
Southeast, days	3		
South, days	9		
Southwest, days	2		
West, days	3		
Northwest, days	9		
Weather			
Mean relative humidity, percent	70.7	70.6	
Mean cloudiness, percent	47	55.1	72, 1900, 1927; 34, 1917
Number of clear days	11	6	15, 1903; 1, 1900, 1911, 1927
Number of fair days	7	9	16, '12; 4, '89, '30, '32, '35
Number of cloudy days	12	15	24, 1927; 9, 1905, 1917
Number hours bright sunshine	135	121	182, 1903; 66, 1927
Percent of possible hours of bright sunshine	46.1	41.3	
Thunder and lightning	..		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1940.

REMARKS

The weather during November was warmer than usual, more sunshine than normal, and heavy rainfall during the first part of the month. The mean temperature for the month was 42.8 degrees, the normal being 38.9 degrees. This is the warmest November at Amherst since 1889, except for four years. It was equalled in 1934 and exceeded in 1927, 1931, and 1935 with mean November temperatures of 43.9, 44.1 and 43.4 degrees. The highest temperature was 74 degrees on the 19th, which was the highest temperature ever recorded so late in the season at this station. The lowest temperature was 19 degrees on the 25th. The domestic heating load for the month was 667 degree-days, the normal for November being 784 degree-days. The total degree-days for the season is now 1223 degree-days compared to a normal of 1389 for that period. There were 135 hours of bright sunshine, the normal for November being 121 hours. The total rainfall for the month was 4.29 inches, whereas the normal for November is 3.41 inches. Of this amount, over 2 inches fell on the first day of the month and 1½ inches on the 6th and 7th. The total rainfall since January 1 is now 30.11. The normal being 40.32 inches. Snow flurries were seen on the 12th and 26th.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 636 December 1941

Meteorological Observations

FOR

DECEMBER

1941

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	36	3 P	17	7 A	26.5	53	8.8	n	125	9				
2	47	4 P	32	0 A	39.5	100	0.0	se	86	9	4 A	12 P	0.20	
3	50	3 P	33	11 P	41.5	100	2.7	nw	26	4				
4	42	2 P	33	0 A	37.5	100	0.2	sw	25	4				
5	50	8 P	39	0 A	44.5	100	0.2	nw	31	4	1 P	12 P	0.24	
6	51	12 M	31	12 P	41.0	72	7.3	nw	212	32				
7	34	1 P	21	12 P	27.5	61	5.7	nw	417	28				
8	39	3 P	17	6 A	28.0	65	5.1	se	98	12				
9	41	12 M	29	6 A	35.0	63	5.4	nw	239	25				
10	42	2 P	25	12 P	33.5	63	4.7	nw	258	28				
11	26	2 P	12	12 P	19.0	54	9.1	nw	267	22				
12	26	2 P	8	7 A	17.0	63	6.2	n	126	15				
13	37	8 P	20	0 A	28.5	78	0.0	nw	107	14	11 A	12 P	0.92	1.00
14	41	12 M	33	10 A	37.0	78	3.1	nw	334	28	0 A	9 A	1.20	
15	36	1 P	29	8 A	32.5	62	4.5	nw	306	28				
16	45	3 P	31	1 A	38.0	58	4.7	s	184	12				
17	45	1 P	28	11 P	36.5	60	6.2	nw	186	20				
18	44	2 P	25	4 A	34.5	73	3.7	s	143	18				
19	46	2 P	32	12 P	39.0	60	8.2	nw	193	25				
20	40	10 A	10	12 P	25.0	58	5.6	n	271	32				
21	25	2 P	5	8 A	15.0	55	9.0	nw	189	20				
22	30	4 P	7	8 A	18.5	56	8.2	nw	88	9				
23	34	12 P	19	5 A	26.5	72	0.0	nw	34	3	5 P	12 P	0.15	
24	56	2 P	34	0 A	45.0	87	0.0	s	186	8	0 A	6–30 P	1.00	
25	45	12 M	30	12 P	37.5	63	8.1	nw	285	20				
26	35	3 P	24	7 A	29.5	75	4.0	nw	72	11			T	
27	42	3 P	30	3 A	36.0	81	3.4	nw	103	25			T	
28	40	3 P	28	7 A	34.0	68	7.8	n	196	22	8 P	12 P	0.10	1.00
29	29	12 M	19	12 P	24.0	74	2.0	n	134	15	0 A	1 A	0.01	T
30	32	3 P	9	7 A	20.5	69	9.1	n	148	15				
31	27	3 P	8	4 A	17.5	79	2.0	nw	11	2				

*Based on least time required to blow one mile.

SOL KRIMINETSKY, *Observer*

MONTHLY SUMMARY

December, 1941		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.67, 12th	30.66	30.96, 1889
Minimum	29.34, 24th	29.27	28.85, 1915
Mean semi-daily	30.054	30.06	
Range	1.33	1.38	1.78, 1895; 1.01, 1892
Air Temperature, in degrees F.			
Highest	56, 24th	54.3	65.5, 1908
Lowest	5, 21st	-1.9	-22.5, 1917
Mean	31.1	27.5	36.9, 1891; 17.1, 1917
Range	51	56.2	
Highest mean daily	45, 24th		
Lowest mean daily	15, 21st		
Mean maximum	39.1		
Mean minimum	23.2		
Greatest daily range	30, 20th		
Least daily range	7, 15th		
Precipitation, in inches			
Precipitation	3.82	3.39	7.77, 1901; .87, 1896
Snow	2.00	8.50	26.50, '02; t, 1891
Maximum precipitation in 24 hrs.	2.12, 13th, 14th		
Number of days with .01 or more	8	10	17, 1902; 4, 1892
Wind, in miles			
Total movement	5080	4710	6,694, 1925; 3,239, 1918
Greatest daily movement	417, 7th		
Least daily movement	11, 31st		
Mean hourly velocity	6.8	6.3	
Maximum velocity	32, 6th, 20th	31.4	48, 1938
Wind, direction			
Prevailing direction	NW	WNW	
North, days	6		
Northeast, days	0		
East, days	0		
Southeast, days	2		
South, days	3		
Southwest, days	1		
West, days	0		
Northwest, days	19		
Weather			
Mean relative humidity, percent	70.6	69.4	
Mean cloudiness, percent	63	54.9	71, 1929; 39, 1919
Number of clear days	9	8	15, 1890; 2, 1922, 1933
Number of fair days	13	9	16, '09; 4, '89 '30, '31, '36, '38
Number of cloudy days	9	14	23, '33; 7, '09, '23
Number hours bright sunshine	145	128	172, 1896; 63, 1933
Percent of possible hours of bright sunshine	51.2	45.2	
Thunder and lightning	..		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1940.

ANNUAL SUMMARY

Annual 1941		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.67, Dec. 12	30.81	31.05, 1920
Minimum	28.91, Feb. 7–8	28.95	28.41, 1938
Mean semi-daily	29.997	30.01	
Range	1.76	1.85	2.47, 1938; 1.38, 1933
Air Temperature, in degrees F.			
Highest	94, June 27	95.7	104, 1911
Lowest	–9, Jan. 30	-12.2	–26, 1904
Mean	48.5	47.4	49.8, 1921; 44, 1904
Range	103	107.8	
Highest mean daily	81, July 2		
Lowest mean daily	4.5, Jan. 30		
Mean maximum	59.7	57.8	
Mean minimum	37.3	36.5	
Greatest daily range	44, April 29, May 6		
Least daily range	2, Jan. 18		
Precipitation, in inches			
Precipitation	33.93	43.70	59.00, 1938; 30.68, 1908
Snow	42.50	47.78	89.00, 1893; 24.50, 1919
Max. precipitation in 24 hrs.	2.12, Dec. 13,14		
Number of days with .01 or more	90	124	144, 1902; 96, 1924
Wind, in miles			
Total movement	54,931	52,223	63,571, 1908; 36,257, 1894
Greatest daily movement	549, Mar. 19		
Least daily movement	11, Dec. 31		
Mean velocity	6.3	5.8	
Maximum velocity	48, Mar. 18	39.5	80, 1938
Wind, direction			
Prevailing direction	WNW	W	
North, days	71		
Northeast, days	5		
East, days	4		
Southeast, days	24		
South, days	69		
Southwest, days	27		
West, days	24		
Northwest, days	141		
Weather			
Mean relative humidity, percent	68.7	67.6	
Mean cloudiness, percent	49.0	51.7	60, '98, '01, '02; 41, '08, '24
Number of clear days	217	116	169, 1936; 59, 1927
Number of fair days	77	123	182, 1912; 64, 1936
Number of cloudy days	71	126	179, '01, '02; 71, 1910
Number hours bright sunshine	3,038	2,353	2838, 1924; 1864, 1902
Percent of possible hours of bright sunshine	68.2	52.8	
Last snow	April 17	April 15	Mar. 14, '10; May 11, '07
First snow	Dec. 13	Nov. 6	Oct. 10, '25; Nov. 27, '31
Last frost	May 13	May 14	Apr. 23, '04; June 8, '32
First frost	Sept. 30	Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 637 January 1942

Meteorological Observations

FOR

JANUARY

1942

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature							Wind			Precipitation			
	Maximum		Minimum											
Day	Degrees	Time	Degrees	Time	Mean	Mean Relative Humidity	Number of Hours Bright Sunshine	Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	38	12 P	22	0 A	30.0	86	0.0	n	13	8	6:30 P	12 P	.13	.25
2	56	9 A	34	12 P	45.0	67	3.1	nw	327	32	0 A	8 P	.52	
3	37	3 P	27	10 P	32.0	53	8.2	nw	274	32				
4	29	1 A	23	11 P	26.0	90	0.8	n	148	15	2 A	5 P	.36	5.50
5	34	2 P	13	10 P	23.5	86	4.7	w	42	8				
6	16	3 P	0	10 P	8.0	63	9.2	nw	128	14				
7	14	2 P	0	7 A	7.0	59	8.0	nw	234	22				
8	15	3 P	−13	7 A	1.0	57	9.3	sw	49	7				
9	19	2 P	−10	5 A	4.5	63	4.9	s	111	13				
10	20	12 M	15	8 A	17.5	69	7.1	nw	168	22	5 A	8 A	.03	.50
11	17	4 P	−10	4 A	3.5	68	0.0	se	151	15				
12	32	12 P	−1	8 A	15.5	74	0.0	s	170	18				
13	32	4 A	8	11 P	20.0	55	9.4	nw	263	28				
14	40	4 P	3	4 A	21.5	69	7.2	s	174	18				
15	40	2 A	24	7 P	32.0	65	7.1	nw	252	32				
16	29	4 A	3	12 P	16.0	52	9.5	nw	348	35				T
17	32	4 P	−4	7 A	14.0	65	9.5	s	121	12				
18	47	3 P	24	5 A	35.5	66	5.8	se	165	11				
19	44	1 A	35	6 A	39.5	92	0.0	nw	100	9	8:30 A	9 P	1.41	
20	40	2 P	33	5 A	36.5	76	4.3	nw	190	25				
21	36	4 P	23	12 P	29.5	60	7.0	nw	221	20				
22	39	3 P	17	7 A	28.0	74	5.3	w	58	8				
23	45	3 P	22	6 A	33.5	73	4.2	sw	132	15				
24	47	2 P	32	7 A	39.5	71	5.6	nw	139	18				
25	34	2 P	27	8 A	30.5	67	2.7	n	136	13				T
26	32	1 A	27	12 P	29.5	70	0.0	ne	154	13				
27	44	3 P	25	3 A	34.5	82	7.1	s	84	19	2 A	8 A	.02	.25
28	36	1 P	22	12 P	29.0	74	0.9	n	163	25				
29	25	3 P	11	12 P	18.0	47	9.9	n	475	32				
30	33	4 P	6	7 A	19.5	48	9.1	n	194	22				
31	34	7 P	22	2 A	28.0	79	0.0	se	105	13	12 M	12 P	1.07	

*Based on least time required to blow one mile.

Sol Kriminetsky, *Observer*

MONTHLY SUMMARY

January, 1942		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.51, 17th	30.70	31.00, 1927
Minimum	29.28, 2nd, 31st	29.20	28.55, 1913
Mean semi-daily	30.055	30.07	
Range	1.23	1.50	2.18, 1913; 0.97, 1896
Air Temperature, in degrees F.			
Highest	56, 2nd	51.1	66.0, 1932
Lowest	−13, 8th	−7.1	−26.0, 1904
Mean	24.1	24.2	34.2, 1913; 13.9, 1918
Range	69	58.2	
Highest mean daily	45, 2nd		
Lowest mean daily	1, 8th		
Mean maximum	33.4		
Mean minimum	14.8		
Greatest daily range	37, 14th		
Least daily range	5, 10th, 26th		
Precipitation, in inches			
Precipitation	3.54	3.61	7.15, 1898; 1.07, 1896
Snow	6 50	13.32	33, 1898, 1923; 1.50,'08
Maximum precipitation in 24 hrs.	1.41, 19th		
Number of days with .01 or more	7	11	15, '93, '20; 4, 1901
Wind, in miles			
Total movement	5289	5055	7770, 1908; 2896, 1895
Greatest daily movement	475, 29th		
Least daily movement	13, 1st		
Mean hourly velocity	7.1	6.8	
Maximum velocity	35, 16th	32.7	47, 1938
Wind, direction			
Prevailing direction	NW	WNW	
North, days	6		
Northeast, days	1		
East, days	0		
Southeast, days	3		
South, days	5		
Southwest, days	2		
West, days	2		
Northwest, days	12		
Weather			
Mean relative humidity, percent	68.4	70.1	
Mean cloudiness, percent	58	55	78, 1932; 37, 1908
Number of clear days	14	9	18, 1941; 2, 1914
Number of fair days	8	9	18, 1890, 1926; 3, 1916
Number of cloudy days	9	13	22, 1923, 1931; 4, 1920, 1939
Number hours bright sunshine	159	137	214, 1920; 74, 1932
Percent of possible hours of bright sunshine	54.1	46.7	
Thunder and lightning			

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1941.

REMARKS

The weather during January was very near normal except that there was less snow than usual. Only 6.5 inches of snow fell during the month while we get an average of 13.32 inches of snow in January. The snowfall for the current season thus far is only 8.5 inches, while the normal for this period is 24.16 inches. The total precipitation during the month was 3.54 inches, the normal for January being 3.61 inches. The mean temperature during the month was 24.1 degrees compared to a normal of 24.2 degrees. The lowest temperature was −13 degrees on the 8th. The domestic heating load during the month was 1267 degree-days, the normal for January being 1265 degree-days. The total heating load for the season to the end of January is 3539 degree-days, while the normal for this period is 3817 degree-days. There were 159 hours of bright sunshine which is well above the average of 137 hours. The mean relative humidity was 68.4 per cent, the normal being 70.1 per cent.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 638 February 1942

Meteorological Observations

FOR

FEBRUARY

1942

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	36	12 M	22	12 P	29.0	83	0.3	w	204	22				
2	22	0 A	7	12 P	14.5	72	10.0	nw	364	25				
3	17	3 P	0	7 A	8.5	59	10.0	nw	264	22				
4	24	5 P	0	6 A	12.0	59	7.1	nw	70	7				
5	27	12 P	14	0 A	20.5	93	0.0	nw	80	8	0 A	12 P	.56	6.5
6	34	2 P	27	0 A	30.5	88	1.2	n	200	13	0 A	2 A	.04	0.5
7	39	4 P	28	7 A	33.5	83	0.0	n	202	25	10 A	5 P	.32	
8	38	12 M	17	12 P	27.5	76	3.4	nw	293	25	0 A	8 A	.05	
9	25	3 P	10	8 A	17.5	63	10.3	nw	360	25				
10	34	4 P	10	7 A	22.0	61	7.5	n	136	15				
11	34	4 P	15	7 A	24.5	57	6.8	n	120	14				
12	24	1 P	9	7 A	16.5	61	10.4	nw	220	28				
13	24	4 P	9	2 A	16.5	53	8.5	nw	387	32				
14	34	3 P	13	1 A	23.5	55	8.5	nw	361	25				T
15	41	1 P	23	7 A	32.0	66	10.2	nw	145	17				
16	37	4 P	17	6 A	27.0	83	3.0	nw	74	12	5 P	12 P	.21	
17	41	3 P	33	4 A	38.5	82	1.2	nw	168	28	0 A	6 A	.45	
18	43	3 P	26	12 P	34.5	56	10.6	nw	213	25				
19	26	1 P	16	12 P	21.0	61	8.9	nw	216	25	5 A	8 A	.03	1.00
20	20	2 P	7	7 A	13.5	65	8.7	nw	279	28				
21	18	2 P	8	0 A	13.0	57	7.8	nw	401	32				T
22	33	3 P	13	4 A	23.0	64	6.8	nw	368	28				
23	34	3 P	16	12 P	25.0	62	3.3	nw	271	25				T
24	38	1 P	14	7 A	26.0	62	10.9	n	153	18				
25	37	2 P	20	7 A	28.5	64	9.5	nw	224	17				
26	35	2 P	20	7 A	27.5	61	9.6	nw	311	30				
27	36	3 P	23	7 A	29.5	59	9.5	nw	260	20				
28	43	2 P	29	5 A	36.0	74	6.0	n	187	20				T

*Based on least time required to blow one mile.

SOL KRIMINETSKY, *Observer*

MONTHLY SUMMARY

February, 1942		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.46, 4th	30.63	31.05, 1920
Minimum	29.28, 1st	29.24	28.56, 1895
Mean semi-daily	29.831	30.04	
Range	1.18	1.38	1.89, '00, '08; .88, '13 '31
Air Temperature, in degrees F.			
Highest	44, 17th	50.5	65.0, 1930
Lowest	0, 3rd, 4th	-7.4	-22.5, 1918
Mean	24.0	23.7	
Range	44	58	
Highest mean daily	38.5, 17th		
Lowest mean daily	8.5, 3rd		
Mean maximum	32.0	32.8	
Mean minimum	15.9	14.5	
Greatest daily range	24, 4th, 10th, 24th		
Least daily range	7, 6th		
Precipitation, in inches			
Precipitation	1.66	3.19	8.12, 1900; 0.62, 1901
Snow	8.00	13.99	48.75, 1893; 0.50, 1937
Maximum precipitation in 24 hrs.	0.56, 5th		
Number of days with .01 or more	7	10	15, '93, '20; 4, 1901
Wind, in miles			
Total movement	6531	4776	6445, 1896; 3438, 1892
Greatest daily movement	401, 21st		
Least daily movement	70, 4th		
Mean hourly velocity	9.7	7.1	
Maximum velocity	32, 13th, 21st	31.7	48, 1934, 1937
Wind, direction			
Prevailing direction	NW	WNW	
North, days	6		
Northeast, days	0		
East, days	0		
Southeast, days	0		
South, days	0		
Southwest, days	0		
West, days	1		
Northwest, days	21		
Weather			
Mean relative humidity, percent	67.1	66.6	
Mean cloudiness, percent	43	50.9	66, '90, '27; 31, 1905
Number of clear days	17	10	19, 1941; 2, 1927
Number of fair days	4	8	16, 1920; 2, 1936
Number of cloudy days	7	10	16, 1894; 2 1920
Number hours bright sunshine	190	158	221, 1924; 110, '27, '38
Percent of possible hours of bright sunshine	64.2	53.4	
Thunder and lightning			

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1941.

REMARKS

The weather during February was marked by the small amount of rain and snow, the high wind, and the large amount of sunshine. The temperature was very near normal, with a mean temperature of 24 degrees, the normal being 23.7 degrees. The highest temperature was 44 degrees on the 17th and the lowest 0 on the 3rd and 4th. The normal low temperature for February is –7.4 degrees. It may be interesting to recall that the lowest temperature ever recorded at the station was –22.5 degrees in February, 1918. The domestic heating load for the month was 1149 degree-days, the normal for February being 1165 degree-days. The total heating load for the season is 4688 degree-days. The normal heating load to the end of February is 4982 degree-days. The normal heating load for February is based on the 50-year record including 11 leap years and hence is high compared with years which are not leap years.

The total precipitation for the month was 1.66 inches, while the normal for February is 3.19 inches. It is interesting to note that the precipitation in February, 1941 was 1.59 inches. The total precipitation for January and February of this year is 5.20 inches whereas for the same period in 1941 it was only 3.80 inches. Only 8 inches of snow fell in February compared to a normal of 13.99 inches. The total snowfall for the winter is 16.50 inches, while the normal to the end of February is 38.15 inches. There were 190 hours of bright sunshine, the normal being 158 hours. The total wind movement during the month was 6531 miles which is the highest ever recorded in February. The nearest to this record was 6445 miles in 1896. The normal for February is 4776 miles. The highest wind velocity was 32 miles per hour on the 13th and 21st. The wind blew from the northwest on 21 days.

MASSACHUSETTS AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 639 March 1942

Meteorological Observations

FOR

MARCH

1942

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	45	3 P	31	7 A	38.0	63	4.9	n	65	8				
2	46	4 P	32	7 A	39.0	63	6.3	sw	68	10				
3	43	2 P	32	6 A	37.5	91	0.0	ne	271	48	2 A	12 P	1.82	2.00
4	43	3 P	32	12 P	37.5	69	4.1	nw	253	25				
5	55	3 P	27	4 A	41.0	58	9.0	s	136	17				
6	39	5 P	34	12 P	36.5	83	0.0	nw	151	20	6 A	3 P	.27	T
7	50	5 P	28	6 A	39.0	56	11.5	s	184	15				
8	63	3 P	31	7 A	47.0	73	10.7	s	145	17	8 P	12 P	.03	
9	62	9 A	37	12 P	49.5	81	3.0	sw	358	35	0 A	4 P	1.37	
10	43	3 P	32	5 A	37.5	43	5.5	w	436	32				
11	54	4 P	29	7 A	41.5	47	11.6	s	202	12				
12	48	2 P	34	12 P	41.0	80	1.8	nw	170	32	3 A	11 A	.13	
13	52	5 P	28	7 A	40.0	52	11.7	nw	138	13				
14	36	2 P	31	7 A	33.5	73	0.0	n	77	6	2 A	12 P	.50	3.25
15	38	1 P	30	6 A	34.0	89	4.6	n	146	10				
16	47	4 P	31	5 A	39.0	87	7.3	w	61	10	6:30P	12 P	.67	
17	38	2 P	33	3 A	35.5	99	0.0	nw	89	13	0 A	10 30 P	1.17	
18	53	3 P	35	5 A	44.0	80	5.6	nw	92	18				
19	42	5 P	37	8 A	39.5	60	6.3	w	332	40				
20	50	4 P	28	6 A	39.0	49	12.1	nw	283	25				
21	52	2 P	27	3 A	39.5	69	7.4	se	128	15	5 P	12 P	.87	
22	47	4 P	33	12 P	40.0	74	6.3	w	280	40	0 A	6 30A	.82	T
23	40	2 P	30	4 A	35.0	66	5.6	nw	252	25				T
24	43	3 P	28	5 A	35.5	62	6.3	nw	207	25				
25	46	5 P	28	6 A	37.0	59	11.7	nw	235	32				
26	52	2 P	32	4 A	42.0	60	10.0	n	226	25				
27	59	4 P	26	6 A	42.5	61	12.4	w	83	13				
28	59	3 P	31	6 A	45.0	60	9.2	e	169	18				
29	51	2 P	26	6 A	38.5	52	9.0	e	180	28	10:30P	12 P	.01	
30	43	4 P	30	6 A	36.5	83	3.1	n	215	27	0 A	8 A	.14	2.00
31	53	1 P	30	6 A	41.5	66	8.0	se	142	15	5 P	10 P	.09	

*Based on least time required to blow one mile.

SOL KRIMINETSKY, *Observer*

MONTHLY SUMMARY

March, 1942		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.40, 28th	30.57	30.96, 1904
Minimum	28.96, 3rd	29.24	28.47, 1914
Mean semi-daily	29.890	30.00	
Range	1.44	1.34	2.10, 1914 ; 0.85, 1915
Air Temperature, in degrees F.			
Highest	63, 8th	63.8	79.5, 1907, 1921
Lowest	26, 27th, 29th	6.1	−7.5, 1906
Mean	39.4	34.4	
Range	37	57.6	
Highest mean daily	49.5, 9th		
Lowest mean daily	33.5, 14th		
Mean maximum	48.1	43.2	
Mean minimum	30.7	25.4	
Greatest daily range	33, 27th		
Least daily range	5, 6th, 14th, 17th		
Precipitation, in inches			
Precipitation	7.89	3.70	7.13, 1899; 0.12, 1915
Snow	7.25	7.47	27, 1899; 0, 1921
Maximum precipitation in 24 hrs.	1.82, 3rd		
Number of days with .01 or more	13	11	17, 1890, 1913, 1936; 3, 1915
Wind, in miles			
Total movement	5774	5944	8182, 1896; 3006, 1905
Greatest daily movement	436, 10th		
Least daily movement	61, 16th		
Mean hourly velocity	7.8	7.7	
Maximum velocity	48, 3rd	31.2	48, 1932, 1939, 1941
Wind, direction			
Prevailing direction	NW	WNW	
North, days	5		
Northeast, days	1		
East, days	2		
Southeast, days	2		
South, days	4		
Southwest, days	2		
West, days	5		
Northwest, days	10		
Weather			
Mean relative humidity, percent	68.0	64.2	
Mean cloudiness, percent	55	51.8	
Number of clear days	11	11	22, 1924; 3, 1901
Number of fair days	13	10	17, 1900; 3, 1941
Number of cloudy days	7	10	21, 1901; 1, 1915
Number hours bright sunshine	205	199	292, 1924; 93, 1901
Percent of possible hours of bright sunshine	55.2	53.6	
Thunder and lightning	9th, 17th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1941.

REMARKS

The weather during March was warmer than usual, with a large amount of rain. The mean temperature during the month was 39.4 degrees which is 5 degrees warmer than usual. The highest temperature was 63 degrees on the 8th and the lowest 26 degrees on the 27th and 29th. This is the highest minimum for March ever recorded at this station. The nearest was 21 degrees in March, 1889 and the next 19 degrees in 1903. The College Pond was clear of ice on March 20. This is about 10 days earlier than usual. The domestic heating load for the month was 792 degree-days. The normal is 950 degree-days. The total heating load for the season to the end of March is 5480 degree-days, while the normal for this period is 5932 degree-days.

The total precipitation during the month was 7.89 inches. This is the greatest precipitation ever recorded at this station during March. The nearest to this record was 7.13 inches in 1899. The normal for March is 3.70 inches. The total for the three-month period beginning at New Year's is 13.09 inches while the normal for this period is 10.50 inches. The total snowfall during the month was 7.25 inches which is slightly less than normal. The total snowfall to the end of March was 23.75 inches while the normal for that period is 45.62 inches. During the winter of 1936-1937 the total snowfall was 23.25 inches.

There were 205 hours of bright sunshine which exceeds the normal value by 6 hours.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 640 April 1942

Meteorological Observations

FOR

APRIL

1942

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	45	6 P	32	6 A	38.5	69	1.4	w	237	22				
2	63	4 P	30	5 A	46.5	53	12.4	sw	163	20				
3	65	3 P	47	6 A	56.0	49	9.3	n	132	8				
4	54	3 P	40	12 P	47.0	70	6.6	n	135	13	2 A	5 A	.05	
5	67	4 P	31	6 A	49.0	73	5.2	s	115	13				
6	78	3 P	36	6 A	57.0	53	12.9	s	142	17				
7	65	12 M	44	12 P	54.5	67	4.8	nw	113	13	8 P	12 P	.15	
8	55	4 P	40	11 P	47.5	54	8.9	n	223	20				
9	44	5 P	35	3 A	39.5	42	2.0	n	132	10				
10	38	0 A	30	12 P	34.0	94	1.0	n	105	15	3 A	8 P	.43	4.00
11	41	2 P	29	4 A	35.0	81	5.4	nw	111	11	0 A	8 A	.11	1.00
12	46	2 P	31	10 P	38.5	68	3.9	nw	274	22	6 P	6:30 P	.01	T
13	51	3 P	30	6 A	40.5	62	9.3	nw	162	20	12:30 P	1 P	.01	T
14	60	3 P	26	6 A	43.0	47	6.6	sw	106	15				
15	70	5 P	44	0 A	57.0	63	2.4	se	181	20	8 P	12 P	.08	
16	67	5 P	44	12 P	55.5	68	9.8	n	149	13	0 A	2 A	.12	
17	70	3 P	39	4 A	54.5	63	6.9	se	191	17			T	
18	52	11 A	38	12 P	45.0	62	6.0	nw	273	22				
19	53	3 P	35	1 A	44.0	62	4.1	nw	261	25				
20	49	3 P	38	12 P	43.5	71	5.4	n	185	15			T	
21	52	3 P	38	6 A	45.0	64	6.9	n	220	22				
22	68	5 P	29	6 A	48.5	48	13.5	n	163	20				
23	77	4 P	36	6 A	56.5	43	13.7	sw	56	14				
24	82	4 P	38	5 A	60.0	47	13.8	se	87	12				
25	85	3 P	41	6 A	63.0	51	13.8	se	85	13				
26	78	1 P	49	12 P	63.5	45	13.8	se	119	17				
27	70	5 P	36	6 A	53.0	35	12.5	se	123	17				
28	65	3 P	39	5 A	52.0	59	9.5	s	161	13				
29	78	6 P	40	4 A	59.0	64	10.3	s	123	13				
30	84	3 P	47	6 A	65.5	48	12.9	nw	113	18				
31														

*Based on least time required to blow one mile.

Sol Kriminetsky, *Observer*

MONTHLY SUMMARY

April 1942		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.36, 9th	30.48	30.71, 1911
Minimum	29.55, 11th, 12th	29.38	28.99, 1907, 1929
Mean semi-daily	30.013	29.99	
Range	0.81	1.11	1.52, 1930; .72, 1919
Air Temperature, in degrees F.			
Highest	85, 25th	79.4	90, 1941
Lowest	26, 14th	22.0	8.5, 1923
Mean	49.7	45.7	52, 1921; 41.2, 1926
Range	59	57.4	
Highest mean daily	65.5, 30th		
Lowest mean daily	34, 10th		
Mean maximum	62.4	56.8	
Mean minimum	37.1	34.8	
Greatest daily range	44, 24th, 25th		
Least daily range	8, 10th		
Precipitation, in inches			
Precipitation	0.96	3.35	6.89, 1929; .55, 1941
Snow	5.00	2.17	11, 1891; 0, 1910, 1934
Maximum precip. in 24 hrs.	0.43, 10th		
Number of days with .01 or more	8	11	18, 1909; 3, 1892
Wind, in miles			
Total movement	4640	5404	8208, 1908; 3853, 1917
Greatest daily movement	274, 12th		
Least daily movement	56, 23rd		
Mean hourly velocity	6.4	7.5	
Maximum velocity	25, 19th	31.4	40, 1935, 1938, 1940
Wind, direction			
Prevailing direction	NW	WNW	
North, days	9		
Northeast, days	0		
East, days	0		
Southeast, days	6		
South, days	4		
Southwest, days	3		
West, days	1		
Northwest, days	7		
Weather			
Mean relative humidity, percent	59.2	61.6	
Mean cloudiness, percent	52	51.8	75,1901; 34, 1925, 1927
Number of clear days	13	11	23, 1941; 3, 1898, 1902
Number of fair days	11	9	18, 1915; 2, 1894, 1901
Number of cloudy days	6	10	22, 1901; 1, 1941
Number hours bright sunshine	245	220	329, 1941; 103, 1901
Percent of possible hours of bright sunshine	60.9	54.7	
Last snow	April 11	Apr. 15	Mar. 14, 1910; May 11, 1907

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1941.

REMARKS

The weather during April was dry and warm, quite similar to April 1941 although not quite as extreme. The mean temperature for the month was 49.7 degrees, the normal being 45.7 degrees. Last year, April had a mean temperature of 52.1 degrees. The domestic heating load of the month was 458 degree-days, compared to a normal of 579 degree-days. The total heating load for the season to the end of April is 5938 degree-days whereas the normal for this period is 6511 degree-days. The total precipitation for the month was .96 of an inch. Last year only .55 of an inch of rain fell in April. Five inches of snow fell during the month. The normal rainfall for April is 3.35 inches. The total precipitation since January 1st is now 14.05 inches, the normal for these four months being 13.85 inches. There were 245 hours of bright sunshine. The normal sunshine for April is 220 hours.

Dr. J. K. Shaw, Research Professor of Pomology, makes the following comments: "The past winter was not severe, yet there was some injury to fruit plants. The hardier varieties of peaches came through with plenty of live fruit buds, but those of tender varieties, such as Elberta, were all killed. The amount of killing will vary with different orchards; therefore, the peach crop will be small and spotty depending on the site and varieties. Raspberry canes show considerable winter injury, especially among the more tender varieties. As last year, this season is now far advanced and with little rainfall. Vegetation is at just about the same stage as it was a year ago. Last year was, on the whole, very favorable to fruit plants. If, as last year, we escape a too prolonged drought and spring frosts, fruit crops, except peaches and raspberries, should be good. Apple trees are beginning to bloom plentifully. Frost injury to blossoms and young apples is unusual in this area, but the earlier the bloom, the more danger of frost injury. McIntosh trees are especially full of bloom."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 641 May 1942

Meteorological Observations
FOR
MAY
1942

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	78	1 P	51	12 P	64.5	49	10.2	sw	72	13				
2	77	2 P	48	5 A	62.5	48	11.3	s	169	13				
3	86	4 P	55	6 A	70.5	73	7.6	s	119	12				
4	81	12 M	58	12 P	69.5	65	9.3	s	169	15	12-30 P	1-30 P	.02	
5	64	12 M	43	11 A	53.5	54	14.2	nw	265	22				
6	68	3 P	35	6 A	51.5	56	10.8	sw	82	8	8 P	12 P	.03	
7	50	5 P	44	6 A	47.0	94	0.0	n	103	7	0 A	6 P	.72	
8	61	4 P	45	6 A	53.0	79	7.3	n	64	9				
9	56	1 P	49	6 A	52.5	84	1.3	s	96	8				
10	63	5 P	42	12 P	52.5	63	9.0	n	180	17			T	
11	64	4 P	31	5 A	47.5	50	13.8	se	82	11				
12	70	1 P	43	5 A	56.5	78	6.3	se	171	25	6 P	12 P	.43	
13	85	4 P	57	6 A	71.0	73	11.0	se	123	8	0 A	1 A	.11	
14	75	5 P	55	6 A	65.0	76	8.9	se	106	13				
15	77	3 P	57	5 A	67.0	78	7.4	se	154	13				
16	77	1 P	56	5 A	66.5	76	4.9	se	196	15				
17	63	2 P	55	12 P	59.0	87	0.3	n	150	17	0 A	11 A	1.19	
18	66	3 P	52	6 A	59.0	79	4.0	n	140	15				
19	72	2 P	59	5 A	65.5	80	4.2	s	86	9			T	
20	69	2 P	58	6 A	63.5	85	1.8	s	77	7			T	
21	62	11 A	56	7 A	59.0	89	1.2	n	108	9	2-30 A	9 P	.27	
22	75	1 P	57	5 A	66.0	82	3.6	se	135	15	1 P	2 P	.01	
23	75	5 P	61	5 A	68.0	82	10.2	s	119	11	8-30 A	9 A	.01	
24	74	4 P	55	5 A	64.5	70	10.6	sw	72	11				
25	74	5 P	49	6 A	61.5	67	12.0	nw	69	10			T	
26	77	3 P	48	4 A	62.5	66	10.8	w	48	6				
27	75	4 P	51	12 P	63.0	58	14.0	n	149	20			T	
28	76	4 P	42	4 A	59.0	50	15.0	nw	82	10				
29	83	3 P	46	5 A	64.5	64	15.0	se	128	14				
30	87	3 P	61	3 A	74.0	68	15.0	nw	195	20				
31	70	5 P	58	8 A	64.0	77	7.0	nw	90	10	0 A	7 A	.19	

*Based on least time required to blow one mile.

SOL KRIMINETSKY, *Observer*

MONTHLY SUMMARY

May 1942		Normal	Extremes
Barometer, in inches			
(Readings reduced to sea level)			
Maximum	30.31, 6th	30.39	30.62, 1936
Minimum	29.77, 23rd	29.51	29.10, 1938
Mean semi-daily	30.050	29.96	
Range	0.54	0.88	
Air Temperature, in degrees F.			
Highest	87, 30th	86.1	94.5, 1896, 1911
Lowest	31, 11th	31.2	24.0, 1900
Mean	61.4	57.1	
Range	56	54.9	
Highest mean daily	74, 30th		
Lowest mean daily	47, 7th		
Mean maximum	71.9		
Mean minimum	50.9		
Greatest daily range	37, 29th		
Least daily range	6, 7th, 21st		
Precipitation, in inches			
Precipitation	2.98	3.60	7.44, 1931; .48, 1903
Snow			
Maximum precip. in 24 hrs.	1.19, 17th		
Number of days with .01 or more	10	12	20, 1901; 5, 1903
Wind, in miles			
Total movement	3799	4504	5946, 1907; 2180, 1894
Greatest daily movement	265, 5th		
Least daily movement	48, 26th		
Mean hour velocity	5.1	6.1	
Maximum velocity	25, 12th	28.8	45, 1935
Wind, direction			
Prevailing direction	SSW	W	
North, days	7		
Northeast, days	0		
East, days	0		
Southeast, days	8		
South, days	7		
Southwest, days	3		
West, days	1		
Northwest, days	5		
Weather			
Mean relative humidity, percent	71	60.7	
Mean cloudiness, percent	57	52.1	70, 1901, 1902; 30, 1923
Number of clear days	13	11	20, 1923, 1941; 0, 1927
Number of fair days	10	11	17, 1907, 1926; 5, 1923
Number of cloudy days	8	9	20, 1927; 2, 1941
Number hours bright sunshine	258	252	338, 1941; 137, 1927
Percent of possible hours of bright sunshine	57	55.6	
Thunder and lightning	4th, 12th, 13th, 31st		
Last frost	May 11	May 14	June 8, 1932; Apr. 23, 1904

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1941.

REMARKS

The weather during May was normal in most respects except that the temperature was higher than usual. The mean temperature for the month was 61.4 degrees, while the normal is 57.1 degrees. This mean temperature has been exceeded only twice in May since 1889, in 1911 and 1918. In 1911 the mean was 62.5 degrees and in 1918, 62.2 degrees. The highest temperature was 87 degrees on the 30th and the lowest, 31 degrees on the 11th. These are normal ranges of temperature for May. The last frost of the month occurred on May 11. The domestic heating load for the month was 144 degree-days as compared to a normal of 287 degree-days. The total heating load for the season is now 6082 degree-days compared to a normal of 6798 degree-days. In other words, the heating load during the current year has been only 90 percent of the normal value.

The total precipitation for the month was 2.98 inches, the normal being 3.60 inches. This brings the total precipitation since January 1 to 17.03 inches which is 0.42 less than normal for that period. There were 258 hours of bright sunshine which is 6 hours higher than the average. There were no high winds during the month.

Dr. J. K. Shaw, research pomologist, makes the following statement regarding the progress of vegetation: "Weather during May was seasonable and fruit plants have made normal progress. The bloom of apple trees was very early, about the same date as last year. Bloom was very heavy. Many trees, especially McIntosh, that produced a good crop last year bloomed heavily. Conditions for pollination were good and set of young apples seems to be heavy. Some frost injury was reported from low-lying orchards but indications now point to one of the heaviest apple crops in recent years. The peach bloom was better than anticipated but varieties tender in bud show little or no bloom. Strawberries are beginning to ripen the first of June. The prospects are for a good blueberry crop but raspberries may be a short crop owing to winter injury to the canes."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 642 June 1942

Meteorological Observations

FOR

JUNE

1942

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	68	12 M	50	12 P	59.0	74	4.0	sw	64	7	3 P	12 P	.12	
2	62	12 M	49	2 A	55.5	69	3.4	se	84	11	0 A	6 A	.10	
3	61	5 P	48	4 A	54.5	91	0.0	nw	53	6	2 A	6 P	.03	
4	64	4 P	56	4 A	60.0	91	0.0	s	64	11	6 P	12 P	.06	
5	77	4 P	57	12 P	67.0	65	12.8	nw	172	25				
6	82	6 P	50	5 A	66.0	63	15.2	s	83	10				
7	77	5 P	62	6 A	69.5	86	3.7	s	85	12	9 A	12 P	.36	
8	83	7 P	64	7 A	73.5	72	15.2	n	84	11	0 A	4 A	.12	
9	85	5 P	53	7 A	69.0	65	15.2	s	59	9				
10	86	6 P	54	7 A	70.0	63	15.2	s	113	10				
11	88	3 P	67	2 A	77.5	77	10.0	s	135	12				
12	88	4 P	71	6 A	79.5	84	8.4	s	147	15	5 P	7 P	.34	
13	90	3 P	68	4 A	79.0	83	7.3	se	68	11				
14	82	2 P	61	12 P	71.5	87	5.9	s	80	20	4 P	11 P	1.40	
15	73	3 P	59	5 P	66.0	69	14.0	n	337	28				
16	75	1 P	57	4 A	66.0	72	9.2	n	201	18			T	
17	68	3 P	55	5 A	61.5	75	7.8	e	101	12	11 P	12 P	.05	
18	78	4 P	52	6 A	65.0	84	8.4	nw	58	20	5:30 P	6 P	.10	
19	84	4 P	50	5 A	67.0	68	11.0	w	76	15				
20	83	4 P	59	5 A	71.0	63	15.3	nw	108	15				
21	67	6 P	57	5 A	62.0	92	0.0	nw	38	4	7 A	2 P	.35	
22	76	3 P	60	4 A	68.0	72	13.6	w	63	7				
23	79	5 P	59	2 A	69.0	74	8.1	sw	63	15	2 A	6:30 P	.60	
24	74	6 P	53	5 A	63.5	63	15.3	nw	141	18				
25	74	2 P	50	6 A	62.0	59	14.6	w	139	20				
26	81	3 P	51	6 A	66.0	62	12.7	s	64	9				
27	83	2 P	56	5 A	69.5	67	10.0	se	67	10				
28	79	3 P	55	5 A	67.0	79	7.0	s	57	7			T	
29	87	3 P	63	6 A	75.0	72	10.0	s	62	8				
30	85	2 P	65	3 A	75.0	66	11.7	se	177	17				

*Based on least time required to blow one mile.

J. F. Hanson, *Observer*

MONTHLY SUMMARY

June 1942		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.32, 2nd	30.30	30.54, 1889
Minimum	29.58, 14th	29.55	29.24, 1902
Mean semi-daily	29.963	29.95	
Range	0.74	0.75	
Air Temperature, in degrees F.			
Highest	90, 13th	91.2	101, 1919
Lowest	48, 3rd	40.0	34, 1891
Mean	67.5	65.7	
Range	42.	51.3	
Highest mean daily	79.5, 12th		
Lowest mean daily	54.5, 3rd		
Mean maximum	78.0		
Mean minimum	57.0		
Greatest daily range	34, 19th		
Least daily range	8, 4th		
Precipitation, in inches			
Precipitation	3.63	3.75	9.68, 1922; 0.76, 1908
Snow			
Maximum precipitation in 24 hrs.	1.40, 14th		
Number of days with .01 or more	12	11	17, 1922; 4, 1908
Wind, in miles			
Total movement	3043	3585	4571, 1908; 1409, 1906
Greatest daily movement	337, 15th		
Least daily movement	38, 21st		
Mean velocity	4.2	5.0	
Maximum velocity	28, 15th	24.6	48, 1939
Wind, direction			
Prevailing direction	SW	WSW	
North, days	3		
Northeast, days	0		
East, days	1		
Southeast, days	4		
South, days	11		
Southwest, days	2		
West, days	3		
Northwest, days	6		
Weather			
Mean relative humidity, percent	73.6	66.9	
Mean cloudiness, percent	65	51.1	71, 1903; 28, 1908
Number of clear days	13	10	22, 1908, 1941; 1, 1927
Number of fair days	11	12	23, 1912; 3, 1941
Number of cloudy days	6	8	22, 1903; 1, 1923
Number hours bright sunshine	285	257	362, 1908; 102, 1903
Percent of possible hours of bright sunshine	62.4	54.0	
Thunder and lightning	7th, 12th, 13th, 14th, 18th, 19th, 23rd		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1941.

REMARKS

June was a good growing month in Amherst. Rainfall was very near normal. Temperature was higher than usual and there was more sunshine than normal. The total precipitation for the month was 3.63 inches while the normal is 3.75 inches. This brings the total precipitation since January 1 to 20.66 inches, the normal for this period being 21.20 inches. The mean temperature for the month was 67.5 degrees compared to a normal of 65.7 degrees. The highest temperature was 90 degrees on the 13th. The domestic heating load for June was 42 degree-days the normal being 68 degree-days. The heating load for the season is 6124 degree-days while the normal is 6866 degree-days. Amherst residents should therefore have burned 11 percent less fuel than normal during the past winter.

There were 285 hours of bright sunshine. The normal for June is 257 hours. There was slightly less wind than normal with a total movement of 3043 miles. There were no high winds, the highest being 28 miles per hour on the 15th.

Dr. J. K. Shaw, research pomologist, makes the following comment regarding vegetation: "Progress of vegetation during June has been normal. There has been sufficient rain to keep plants growing well. Nights have been rather cool for best growth of warm weather crops. The hay crop is good and grass has started well towards a second crop. There has been a heavy June drop of McIntosh, but in most orchards enough apples remain to make a good crop. Considerable scab appears in some orchards, but those sprayed thoroughly and at the right time are quite free from it. The strawberry crop was generally disappointing. There was some rot, and berries failed to set and develop well. Peaches and raspberries will be short due to winter cold. Blueberries promise a good crop."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 643 July, 1942

Meteorological Observations

FOR

JULY

1942

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	80	5 P	65	3 A	72.5	82	3.5	se	148	13	7 P	12 P	1.13	
2	72	4 P	65	7 A	68.5	90	0.3	s	45	8	0 A	12 P	.45	
3	84	4 P	64	5 A	74.0	78	9.8	nw	96	10	0 A	3 A	.26	
4	87	1 P	65	4 A	76.0	72	9.2	se	125	13			T	
5	83	4 P	68	4 A	75.5	74	11.5	w	70	10	0 A	1 A	.08	
6	85	2 P	63	12 P	74.0	72	9.6	nw	120	25	4 P	7:30 P	.54	
7	74	2 P	53	5 A	63.5	53	15.2	w	139	14				
8	76	11 A	50	5 A	63.0	64	9.7	w	113	18	12 M	1 P	.05	
9	77	3 P	47	5 A	62.0	66	15.1	w	83	17				
10	78	3 P	50	5 A	64.0	66	12.0	se	87	10				
11	68	6 P	53	4 A	60.5	90	0.4	se	85	10	2 A	1 P	.43	
12	82	6 P	57	7 A	69.5	67	15.1	nw	146	22				
13	88	3 P	55	6 A	71.5	68	15.0	s	74	8				
14	91	1 P	58	5 A	74.5	63	14.9	w	167	25				
15	77	3 P	57	12 P	67.0	53	10.7	nw	255	25				
16	78	2 P	50	5 A	64.0	67	11.5	nw	58	11				
17	79	2 P	59	6 A	69.0	66	6.4	nw	64	8				
18	80	5 P	66	3 A	73.0	89	7.5	se	90	7	0 A	10 A	.55	
19	93	3 P	67	5 A	80.0	83	8.0	se	71	10	4:30 P	5:30 P	.02	
20	89	3 P	69	4 A	79.0	77	11.2	nw	136	13				
21	85	4 P	65	4 A	75.0	65	12.5	nw	119	12				
22	85	2 P	60	12 P	72.5	57	14.9	ne	88	13				
23	82	5 P	54	5 A	68.0	66	12.0	nw	68	8				
24	87	3 P	57	5 A	72.0	71	12.8	sw	47	7				
25	90	4 P	66	6 A	78.0	71	9.6	w	45	3				
26	87	1 P	64	5 A	75.5	75	9.9	se	94	17			T	
27	67	4 P	64	12 P	65.5	99	0.0	nw	49	6	4:30 A	9 P	1.32	
28	86	3 P	64	0 A	75.0	86	9.0	w	52	5				
29	88	3 P	62	5 A	75.0	80	8.0	sw	48	9				
30	72	3 P	57	12 P	64.5	87	3.1	n	111	10				
31	71	1 P	55	2 A	63.0	86	2.6	s	57	8	1 P	6 P	.12	

*Based on least time required to blow one mile.

J. F. Hanson, *Observer*

MONTHLY SUMMARY

July 1942	Normal	Extremes
Barometer, in inches (Readings reduced to sea level)		
Maximum 30.31, 26th	30.27	30.50, 1892
Minimum 29.65, 6th	29.59	29.27, 1932
Mean semi-daily 29.970	29.96	
Range 0.66	0.68	0.97, 1892; 0.47, 1938
Air Temperature, in degrees F.		
Highest 93, 19th	93.9	104, 1911
Lowest 47, 9th	46.4	40, 1890, 1898
Mean 70.5	70.8	74.7, 1921; 66.3, 1891
Range 46	47.7	
Highest mean daily 80, 19th		
Lowest mean daily 60.5, 11th		
Mean maximum 81.3		
Mean minimum 59.6		
Greatest daily range......33, 13th, 14th		
Least daily range 3, 27th		
Precipitation, in inches		
Precipitation 4.95	4.10	14.51, 1897; 0.70, 1929
Snow		
Maximum precipitation in 24 hrs......1.32, 27th		
Number of days with .01 or more......11	11	20, 1915; 4, 1924
Wind, in miles		
Total movement 2950	3422	5097, 1909; 1109, 1894
Greatest daily movement 255, 15th		
Least daily movement......45, 2nd, 25th		
Mean hour velocity......4.0	4.6	
Maximum velocity 25, 6th, 14th, 15th	28.7	44, 193
Wind, direction		
Prevailing direction ......W	SW	
North, days 1		
Northeast, days 1		
East, days 0		
Southest, days 7		
South, days 3		
Southwest, days 2		
West, days 7		
Northwest, days 10		
Weather		
Mean relative humidity, percent......73.6	68.4	
Mean cloudiness, percent 59	50.9	69, 1914; 31, 1924
Number of clear days......14	10	22, 1923; 0, 1915
Number of fair days......11	14	24, '09, '21; 5, '89, '23, '28, '36
Number of cloudy days 6	7	18, 1889; 0, 1910
Number hours bright sunshine......291	268	371, 1910; 180, 1931
Percent of possible hours of bright sunshine 63	58	
Thunder and lightning......1st, 4th, 6th, 19th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1941.

REMARKS

The weather during July was very near normal in most respects. The mean temperature for the month was 70.5 degrees, the normal being 70.8 degrees. The highest temperature was 93 degrees on the 19th and the lowest 47 on the 9th. The rainfall during the month was 4.95 inches which is .85 more than normal. The greater part of this rain fell in two storms: on the 1st, 2nd and 3rd, 1.84 inches was recorded and on the 27th, 1.32 inches. The total rainfall since January 1 is now 25.61 inches while the normal for this period is 25.30 inches. There were 291 hours of sunshine compared to a normal of 268 hours. The mean relative humidity was 73.6 percent while the normal for July is 68.4 percent.

Dr. J. K. Shaw reports as follows: "The progress of vegetation during July continued to be normal. Timely rains have favored growth and practically all fruit plants grew well. Ripening dates are yet a week or more earlier than usual, reflecting the early bloom. The peach crop will be rather light especially that of varieties having fruit buds tender to winter cold. Apples, especially McIntosh, continue to promise crops above normal. The blueberry crop is larger than usual and pears and plums seem about normal."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 644 August, 1942

Meteorological Observations

FOR

AUGUST

1942

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean									
	Degrees	Time	Degrees	Time				Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	85	4 P	64	5 A	73.5	70	10.8	w	124	13				
2	79	2 P	55	6 A	67.0	75	6.5	se	66	7			T	
3	82	3 P	59	12 P	70.5	48	14.4	w	189	22				
4	79	4 P	52	5 A	65.5	58	11.9	w	175	22				
5	75	2 P	52	6 A	63.5	63	14.3	nw	104	10				
6	74	2 P	48	5 A	61.0	62	10.7	nw	94	14				
7	81	3 P	47	5 A	64.0	65	13.6	sw	32	6				
8	81	3 P	50	5 A	65.5	73	11.3	sw	47	8				
9	67	5 P	61	7 A	64.0	92	0.0	se	72	7	6:00 A	10 P	.50	
10	75	4 P	62	6 A	68.5	88	1.3	se	94	10			T	
11	85	4 P	64	6 A	74.5	77	8.9	w	65	10				
12	83	2 P	59	6 A	71.0	81	7.2	w	38	3				
13	74	1 P	64	4 A	69.0	90	0.0	nw	40	5	12 M	12 P	.31	
14	82	3 P	68	6 A	75.0	92	5.0	nw	71	10	0 A	8 P	1.82	
15	85	2 P	71	4 A	78.0	84	7.0	s	104	10				
16	83	2 P	72	12 P	77.5	85	5.8	s	158	12	7:30 P	12 P	.02	
17	86	3 P	70	12 P	78.0	76	8.4	s	101	8	0 A	1:30 A	.03	
18	82	2 P	59	12 P	70.5	70	13.5	nw	50	6				
19	84	3 P	54	6 A	69.0	75	13.0	sw	43	7				
20	86	2 P	58	6 A	72.0	71	9.5	se	117	8				
21	90	1 P	67	4 A	78.5	76	13.5	w	83	9				
22	91	2 P	70	5 A	80.5	79	9.0	sw	75	14			T	
23	84	10 A	65	12 P	74.5	70	5.0	w	144	15			T	
24	71	1 P	48	12 P	59.5	63	10.5	nw	143	17				
25	71	4 P	42	5 A	56.5	64	13.5	n	92	9				
26	73	6 P	41	6 A	57.0	70	13.5	nw	40	9				
27	78	3 P	47	6 A	63.5	70	13.5	se	91	8				
28	79	4 P	56	4 A	67.5	79	5.1	se	104	6			T	
29	76	2 P	59	12 P	67.5	80	6.1	ne	108	13	0 A	5 A	.25	
30	80	3 P	55	5 A	67.5	74	11.9	e	78	8				
31	84	4 P	47	5 A	65.5	71	13.3	s	48	7				

*Based on least time required to blow one mile.

J. F. Hanson, *Observer*

MONTHLY SUMMARY

August 1942	Normal	Extremes
Barometer, in inches (Readings reduced to sea level)		
Maximum 30.45, 26th	30.32	30.50, 1934
Minimum 29.71, 2nd, 3rd	29.61	28.87, 1930
Mean semi-daily 30.048	30.00	
Range 0.74	0.71	
Air Temperature, in degrees F.		
Highest 91, 22nd	91.6	100, 1918
Lowest 41, 26th	43.4	37, 1894, 1908
Mean 68.9	68.6	34, 1940
Range 50	48.1	
Highest mean daily 80.5, 22nd		
Lowest mean daily 56.5, 25th		
Mean maximum 80.2		
Mean minimum 57.6		
Greatest daily range 37, 31st		
Least daily range 6, 9th		
Precipitation, in inches		
Precipitation 2.93	4.08	8.40, 1928; .31, 1894
Maximum precipitation in 24 hrs. 2.05, 13th, 14th		
Number of days with .01 or more 6	11	16, 1892, 1933; 4, 1899
Wind, in miles		
Total movement 2790	3127	4,271, 1910; 1,920, 1894
Greatest daily movement 189, 3rd		
Least daily movement 32, 7th		
Mean velocity 3.8	4.2	
Maximum velocity 22, 3rd, 4th	22.7	40, 1941
Wind, direction		
Prevailing direction WSW	SW	
North, days 1		
Northeast, days 1		
East, days 1		
Southeast, days 6		
South, days 4		
Southwest, days 4		
West, days 7		
Northwest, days 7		
Weather		
Mean relative humidity, percent 73.9	70.2	
Mean cloudiness, percent 52	49.7	67, 1901; 27, 1923
Number of clear days 16	9	23, 1941; 0, 1915, 1929
Number of fair days 12	13	25, 1912; 3, 1939
Number of cloudy days 3	9	18, 1901, '28; 2, 1910, '23
Number hours bright sunshine 288	237	332, 1941; 152, 1915, 1929
Percent of possible hours of bright sunshine 67.1	55.2	
Thunder and lightning 14th, 16th, 17th, 22nd		
First frost	Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1941.

REMARKS

The weather during August was very near normal in most respects. There was more sunshine and less rain than usual. The mean temperature for the month was 68.9 degrees which is 0.3 of a degree higher than normal. The highest temperature was 91 degrees on the 22nd and the lowest 41 degrees on the 26th. The rainful during the month was 2.93 inches, the normal for August being 4.08 inches. The total rainfall since January 1st is 28.54 inches compared to a normal of 29.38 inches for this period. There were 288 hours of bright sunshine while the normal for August is 237 hours. The mean relative humidity was 73.9 percent. The normal for August is 70.2 percent. Total wind movement for the month was 2790 miles which is 337 miles less than normal.

Dr. J. K. Shaw, research pomologist, makes the following report on the progress of vegetation: "The season continues to be nearly normal in all respects. There has been sufficient rain to permit vegetation to progress well. Towards the end of the month there were cool nights that noticeably improved the color of McIntosh and other red varieties of the same season, though a clear atmosphere that is likely to accompany cool nights may be the real reason. Rainfall was deficient towards the last of the month, but at this season there is little danger of injury to crops from dry weather. The promise of good crops of all fall-ripening fruit continues."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 645 September 1942

Meteorological Observations

FOR

SEPTEMBER

1942

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	87	3 P	51	5 A	69.0	70	13.2	sw	52	5				
2	90	2 P	54	5 A	72.0	78	13.1	sw	68	9				
3	87	3 P	57	6 A	72.0	80	8.3	nw	73	13			T	
4	69	5 P	57	12 P	63.0	91	0.0	s	47	3	1 A	3 P	.17	
5	77	2 P	50	6 A	63.5	71	12.3	nw	89	14				
6	70	4 P	43	6 A	56.5	64	13.0	nw	64	9				
7	77	2 P	42	5 A	59.5	74	11.5	se	82	10				
8	72	3 P	56	5 A	64.0	85	0.0	nw	51	9	11 A	12 P	.08	
9	61	0 A	55	12 P	58.0	93	0.0	nw	96	10	0 A	9 P	1.45	
10	76	4 P	55	0 A	65.5	88	5.8	se	92	7	8 P	9:30 P	.04	
11	65	10 A	60	4 P	62.5	87	0.0	n	52	9	2:30 P	10 P	.04	
12	67	2 P	60	5 A	63.5	85	0.5	s	55	6				
13	78	3 P	57	12 P	67.5	69	12.6	w	129	13				
14	79	3 P	49	5 A	64.0	74	12.6	sw	55	11				
15	88	3 P	55	3 A	71.5	80	10.5	se	56	7	5 A	6 A	.03	
16	89	2 P	66	12 P	77.5	86	4.5	s	98	18	3:30 P	7:30 P	.21	
17	88	4 P	63	6 A	75.5	84	9.6	w	31	4				
18	84	1 P	63	4 A	73.5	85	3.6	w	39	11	1:30 P	3:30 P	.03	
19	81	1 P	63	6 A	72.0	79	6.0	s	79	8				
20	72	11 A	52	12 P	62.0	84	0.0	s	228	20	5 A	11 A	.18	
21	67	4 P	49	6 A	58.0	71	8.2	n	213	13				
22	72	4 P	48	12 P	60.0	72	9.0	w	86	9				
23	71	2 P	43	6 A	57.0	75	10.5	nw	38	8				
24	76	1 P	48	4 A	62.0	77	3.2	s	124	20			T	
25	67	4 P	40	5 A	53.5	74	12.0	sw	62	8				
26	72	1 P	41	7 A	56.5	70	8.7	se	88	13	7:30 P	9 P	.02	
27	73	4 P	62	12 P	67.5	89	0.0	se	208	25	6 A	12 P	1.69	
28	55	3 P	34	12 P	44.5	64	11.5	nw	251	28				
29	57	4 P	29	5 A	43.0	68	11.9	w	58	13				
30	65	3 P	28	6 A	46.5	67	11.9	sw	43	6				

*Based on least time required to blow one mile.

J. F. HANSON, *Observer*

MONTHLY SUMMARY

September, 1942		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.56, 29th	30.45	30.65, 1924
Minimum	29.64, 27th	29.57	28.41, 1938
Mean semi-daily	30.059	30.06	
Range	0.81	.88	1.99, 1938; .57, 1910
Air Temperature, in degrees F.			
Highest	90, 2nd	87.7	97, 1895, 1929
Lowest	28, 30th	33.2	24.5, 1914
Mean	62.7	61.7	
Range	62	54.5	
Highest mean daily	77.5, 16th		
Lowest mean daily	43.0, 29th		
Mean maximum	74.4		
Mean minimum	51.0		
Greatest daily range	37, 30th		
Least daily range	5, 11th		
Precipitation, in inches			
Precipitation	3.94	4.26	14.55, 1938; .52, 1914
Maximum precipitation in 24 hrs.	1.69, 27th		
Snow			
Number of days with .01 or more	11	10	16, 1933; 3, 1903
Wind, in miles			
Total movement	2707	3271	4,686, 1896; 1,414, 1894
Greatest daily movement	251, 28th		
Least daily movement	31, 17th		
Mean velocity	3.8	4.5	
Maximum velocity	28, 28th	25.9	80, 1938
Wind, direction			
Prevailing direction	SW	WSW	
North, days	2		
Northeast, days	0		
East, days	0		
Southeast, days	5		
South, days	6		
Southwest, days	5		
West, days	5		
Northwest, days	7		
Weather			
Mean relative humidity, percent	77.8	73.6	
Mean cloudiness, percent	53	49.9	70, 1934; 27, 1908, 1914
Number of clear days	16	10	19, 1932; 2, 1907, 1928
Number of fair days	5	10	19, 1908; 3, 1889
Number of cloudy days	9	10	20, 1934; 3, 1941
Number hours bright sunshine	224	201	255, 1916; 106, 1934
Percent of possible hours of bright sunshine	60.1	54.9	
Thunder and lightning	10th, 15th, 16th, 18th		
First frost	Sept. 29	Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1941.

REMARKS

The weather during September was nearly normal in most respects. The mean temperature was only one degree higher than normal for the month but was unusually high during the third week. The highest temperature was 90 degrees on the 2nd and the lowest, 28 degrees on the 30th. The first frost was on the 29th while the normal date for the first frost is September 21.

The domestic heating load for the month was 138 degree-days. The normal for September is 149 degree-days.

The rainfall during the month was 3.94 inches, the normal for September being 4.26 inches. The total precipitation since January 1 is 32.48, while the normal is 33.62 inches. There were 224 hours of bright sunshine compared to a normal of 201 hours. The total wind movement was only 2707 miles while the normal is 3271 miles. The highest wind velocity was 28 miles per hour on the 28th.

Dr. J. K. Shaw, research pomologist, comments as follows: "Alternate cool and warm periods prevailed during September. A warm, moist period came in the midst of the McIntosh harvest and was probably the principal cause of an unusually heavy pre-harvest drop. The McIntosh crop was even larger than expected; the fruit was of good size and fairly well colored; it matured a little earlier than usual. The below freezing temperature of the 29th and 30th may have injured the keeping quality of apples still on the trees, but no serious harm is expected. All tender vegetation was completely killed."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 646 October 1942

Meteorological Observations

FOR

OCTOBER

1942

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	68	2 P	40	4 A	54.0	74	8.9	se	102	9				
2	63	3 P	38	12 P	50.5	53	11.7	n	145	18				
3	64	3 P	34	6 A	49.0	71	11.7	nw	94	11				
4	66	2 P	32	6 A	49.0	77	5.6	s	73	11			T	
5	72	1 P	55	0 A	63.5	82	2.0	se	151	10	9:30 P	12 P	.04	
6	63	2 P	45	12 P	54.0	73	2.9	w	171	20	0 A	4 A	.62	
7	71	1 P	40	6 A	55.5	67	8.8	se	123	12				
8	73	3 P	36	6 A	54.5	64	11.5	s	85	9				
9	76	3 P	46	4 A	61.0	81	4.8	w	74	7				
10	73	3 P	46	12 P	59.5	71	11.3	nw	79	8				
11	72	4 P	37	7 A	54.5	64	11.3	nw	58	9				
12	66	2 P	40	12 P	53.0	67	11.3	nw	143	10				
13	68	4 P	34	6 A	51.0	77	11.2	w	47	6				
14	62	4 P	36	7 A	49.0	84	2.0	w	22	6				
15	72	1 P	50	4 A	61.0	80	4.3	sw	48	6			T	
16	64	4 P	51	12 P	57.5	72	0.0	nw	73	12			T	
17	65	2 P	47	5 A	56.0	68	4.9	n	78	13	5:30 P	12 P	.78	
18	61	2 P	44	4 A	52.5	79	3.1	nw	118	15	0 A	6 A	.44	
19	56	2 P	38	12 P	47.0	70	5.6	w	182	28				
20	55	5 A	35	3 A	45.0	83	2.2	w	61	8				
21	57	6 P	29	6 A	43.0	94	0.0	w	40	11	3 P	12 P	.44	
22	73	3 P	55	1 A	64.0	86	5.3	se	191	17			T	
23	68	1 P	47	12 P	57.5	81	0.5	se	149	17			T	
24	63	2 P	40	12 P	51.5	63	5.2	n	43	5				
25	62	1 P	39	3 A	50.5	71	5.0	nw	98	10				
26	54	2 P	40	12 P	47.0	90	0.0	nw	73	20	10 A	9 P	.95	
27	49	2 P	33	12 P	41.0	57	8.5	sw	196	15				
28	56	1 P	30	6 A	43.0	62	10.5	sw	105	7				
29	62	3 P	26	6 A	44.0	70	9.9	se	66	11				
30	67	2 P	37	6 A	52.0	79	7.6	se	148	14				
31	72	2 P	52	5 A	62.0	75	7.4	se	173	13			T	

*Based on least time required to blow one mile.

J. F. HANSON, *Observer*

MONTHLY SUMMARY

October, 1942		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.66, 13th	30.53	30.68, 1929
Minimum	29.42, 26th	29.42	29.00, 1926
Mean semi-daily	30.085	30.06	
Range	1.24	1.11	1.47, 1926; .76, 1899
Air Temperature, in degrees F.			
Highest	76, 9th	79.4	90.5, 1908
Lowest	26, 29th	23.4	17, 1936
Mean	52.7	50.5	56.4, 1920; 43.2, 1890
Range	50	56.0	
Highest mean daily	64, 22nd		
Lowest mean daily	41, 27th		
Mean maximum	64.9		
Mean minimum	40.4		
Greatest daily range	37, 8th		
Least daily range	13, 16th		
Precipitation, in inches			
Precipitation	3.27	3.29	8.81, 1911; .01, 1924
Snow	—		
Maximum precipitation in 24 hrs.	1.22, 17th, 18th		
Number of days with .01 or more	6	9	15, 1913; 1, 1897, 1924
Wind, in miles			
Total movement	3209	4074	5,467, 1910; 2,540, 1894
Greatest daily movement	196, 27th		
Least daily movement	22, 14th		
Mean velocity	4.3		
Maximum velocity	28, 19th	29.5	42, 1937
Wind, direction			
Prevailing direction	W	W	
North, days	3		
Northeast, days	0		
East, days	0		
Southeast, days	8		
South, days	2		
Southwest, days	3		
West, days	7		
Northwest, days	8		
Weather			
Mean relative humidity, percent	73.7	69.0	
Mean cloudiness, percent	51	48	67, 1932; 18, 1924
Number of clear days	14	10	21, 1938; 1, 1911
Number of fair days	8	10	17, 1924; 3, 1938
Number of cloudy days	9	11	19, 1896; 3, 1924
Number hours bright sunshine	195	175.0	232, '23, '38; 91, 1913
Percent of possible hours of bright sunshine	57.2	51.3	
Thunder and lightning	—		
First frost	Sept. 29	Sept. 21	Aug. 22, '94, '95; Oct. 15, '39

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1941.

REMARKS

The weather during October was unusually pleasant, being warm and clear. The mean temperature for the month was 52.7 degrees as compared to a normal of 50.5 degrees. The highest temperature was 76 degrees on the 9th and the lowest, 26 degrees on the 29th. The domestic heating load for the month was 382 degree-days as compared to a normal of 456 degree-days. The total for September and October is 520 degree-days, the normal being 605 degree-days. The heating load for September and October represents 7.6% of the total heating load for the season.

The rainfall during the month was 3.27 inches which is .02 less than normal. The total rainfall since January 1st is now 35.75 inches while the normal for this period is 36.91 inches. There were 195 hours of bright sunshine during the month. The normal for October is 175 hours. There were no high winds during the month and the total wind movement was 3209 miles compared to a normal of 4074 miles.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 647 November 1942

Meteorological Observations

FOR

NOVEMBER

1942

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	65	11 A	39	12 P	52.0	82	1.0	w	141	32	1 A	8 A	1.12	
2	58	1 P	32	5 A	45.0	72	2.9	s	137	14				
3	47	2 P	32	11 P	39.5	80	2.9	n	188	22	0 A	10 A	.84	
4	46	3 P	26	12 P	36.0	51	10.2	n	214	20				
5	52	3 P	21	7 A	36.5	67	8.4	s	74	10				
6	57	1 P	41	12 P	49.0	79	0.0	se	127	12			T	
7	56	2 P	33	12 P	44.5	77	7.5	n	59	7				
8	43	4 P	32	6 A	37.5	88	0.0	nw	32	9				
9	54	2 P	30	6 A	42.0	71	5.5	sw	72	8				
10	63	4 P	35	1 A	49.0	79	0.0	se	290	40	4:30 P	8 P	.24	
11	44	11 A	29	12 P	36.5	57	2.5	w	271	18				
12	40	3 P	27	1 A	33.5	68	2.5	w	103	20			T	T
13	51	12 M	28	12 P	39.5	65	4.0	w	260	32	2 A	8 A	.09	T
14	28	2 P	21	12 P	24.5	59	4.5	nw	362	25				
15	39	2 P	17	7 A	28.0	47	7.0	se	166	11				
16	55	3 P	27	6 A	41.0	61	3.0	se	123	9				
17	58	3 P	25	7 A	41.5	76	7.7	w	52	9				
18	60	3 P	36	12 P	48.0	87	5.3	nw	101	15	0 A	11 A	.41	
19	58	4 P	36	7 A	47.0	57	9.3	nw	67	14				
20	68	2 P	36	0 A	52.0	68	2.5	w	131	10				
21	43	1 P	27	12 P	35.0	85	0.0	n	137	14	4 A	12 M	.52	
22	37	2 P	20	12 P	28.5	61	9.5	nw	157	15				
23	41	3 P	15	6 A	28.0	73	9.5	w	33	5				
24	37	12 P	28	0 A	32.5	93	0.0	nw	99	17	2 A	12 P	.83	
25	46	12 P	37	0 A	41.5	92	0.0	nw	277	22	0 A	12 P	1.45	
26	49	2 P	43	12 P	46.0	84	0.0	se	128	11	10 P	12 P	.01	
27	43	0 A	30	12 P	36.5	75	3.0	nw	199	22	0 A	10 A	.16	T
28	34	1 P	28	12 P	31.0	59	9.3	w	320	22				
29	34	2 P	24	5 A	29.0	79	3.0	nw	89	9	3 P	9 P	.40	
30	43	2 P	27	12 P	35.0	73	9.0	nw	138	10				

*Based on least time required to blow one mile.

J. F. HANSON, *Observer*

MONTHLY SUMMARY

November, 1942		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.61, 5th	30.59	30.87, 1932
Minimum	29.39, 13th	29.30	28.73, 1904
Mean semi-daily	30.048	30.05	
Range	1.22	1.29	1.84, 1904; .94, 1905
Air Temperature, in degrees F.			
Highest	68, 20th	66.0	75, 1924, 1938
Lowest	15, 23rd	12.9	-4, 1938
Mean	38.8	38.9	44.1, 1931; 33.6, 1901
Range	53	53.0	
Highest mean daily	52, 1st, 20th		
Lowest mean daily	24.5, 14th		
Mean maximum	48.3		
Mean minimum	29.4		
Greatest daily range	33, 17th		
Least daily range	6, 26th, 28th		
Precipitation, in inches			
Precipitation	6.07	3.41	8.64, 1927; .63, 1917
Snow	T	2.34	13.50, 1938
Maximum precipitation in 24 hrs.	1.45, 25th		
Number of days with .01 or more	11	9	22, 1921; 2, 1904
Wind, in miles			
Total movement	4547	4531	5,978, 1906; 2,589, 1889
Greatest daily movement	362, 14th		
Least daily movement	32, 8th		
Mean hourly velocity	6.3	6.3	
Maximum velocity	40, 10th	30.3	44,1938
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	4		
Northeast, days	0		
East, days	0		
Southeast, days	5		
South, days	2		
Southwest, days	1		
West, days	8		
Northwest, days	10		
Weather			
Mean relative humidity, percent	72.2	70.6	
Mean cloudiness, percent	57	55.1	72, 1900, 1927; 34, 1917
Number of clear days	10	6	15,1903; 1, 1900, 1911, 1927
Number of fair days	7	9	16, '12; 4, '89, '30, '32, '35
Number of cloudy days	13	15	24, 1927; 9, 1905, 1917
Number hours bright sunshine	130	121	182, 1903; 66, 1927
Percent of possible hours of bright sunshine	44.4	41.3	
Thunder and lightning	—		
First snow	Nov. 27	Nov. 6	Oct. 10, '25; Nov. 27, '31

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1941

REMARKS

We had a large rainfall during November, the total for the month being 6.07 inches. The normal for the month is 3.41 inches. The total precipitation since January 1 is 41.82 inches while the normal for this period is 40.32 inches. Only traces of snow fell during the month. There were traces of snow in the air on the 12th and 13th but a heavier trace on the 27th is reported as the first snow of the season. The normal date for the first snowfall is November 6 while the latest date for the first snowfall previously observed is November 27.

In spite of 11 days of rain the total hours of bright sunshine was 130 which is well above the average of 121 hours.

The mean temperature during the month was 38.8 degrees, the normal being 38.9 degrees. The lowest temperature was 15 degrees on the 23rd. The domestic heating load was 784 degree-days which is the normal for November. The total heating load for the season to the end of November is now 1304 degree-days or 19 percent of the normal heating load of the whole season. The normal heating load to the end of November is 1389 degree-days. The mean relative humidity was 72.2 percent. The highest wind velocity was 40 miles on the 10th.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorogical Series Bulletin No. 648 December 1942

Meteorological Observations

FOR

DECEMBER

1942

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	48	11 P	23	8 A	35.5	90	0.3	nw	54	28	11:30 A	12 P	.74	1.50
2	53	6 A	22	12 P	37.5	63	3.1	w	179	48	0 A	7 A	.72	T
3	31	8 A	20	1 A	25.5	61	2.3	w	340	28				T
4	34	2 P	21	8 A	27.5	57	7.7	w	264	25				
5	36	1 P	29	7 A	32.5	62	9.2	w	257	22				
6	38	3 P	28	8 A	33.0	61	9.2	w	245	25				
7	37	2 P	26	11 P	31.5	61	9.2	w	205	18				
8	37	2 P	19	12 P	28.0	68	9.1	nw	104	10				
9	27	4 P	17	4 A	22.0	78	1.0	nw	125	20				
10	40	2 P	25	1 A	32.5	72	0.0	se	92	9				
11	43	2 P	29	12 P	36.0	88	0.5	se	105	9				
12	40	12 M	27	7 A	33.5	83	1.0	nw	77	11				
13	27	4 P	17	12 P	22.0	85	0.0	nw	134	28	7 A	7 P	.31	4.00
14	25	12 P	7	7 A	16.0	62	0.5	nw	244	32				
15	35	2 P	24	5 A	29.5	70	0.0	s	158	8				
16	27	0 A	18	12 P	22.5	54	9.0	nw	245	40				T
17	23	2 P	–7	8 A	8.0	58	7.8	sw	115	10	8 P	12 P	.04	.50
18	26	1 P	7	11 P	16.5	62	8.3	nw	146	18	0 A	4 A	.08	1.00
19	14	12 M	–8	12 P	3.0	53	9.0	w	240	40				
20	5	3 P	–15	8 A	–5.0	57	7.6	nw	222	15				
21	15	3 P	–15	7 A	0.0	65	9.0	nw	57	8				
22	34	12 P	–8	6 A	13.0	73	3.4	se	173	20	5 P	12 P	.14	
23	35	3 P	30	5 A	32.5	90	1.4	nw	95	9				
24	36	4 P	32	5 A	34.0	82	0.0	se	81	8				
25	47	1 P	25	12 P	36.0	81	8.2	w	46	6				
26	28	8 A	15	12 P	21.5	65	9.0	n	177	22				
27	27	12 P	11	5 A	19.0	72	2.0	nw	94	8	10 P	12 P	.07	
28	33	2 P	27	0 A	30.0	95	0.0	nw	97	10	0 A	12 P	.97	
29	32	0 A	28	9 P	30.0	95	0.0	n	101	7	0 A	12 P	.63	
30	38	2 P	30	0 A	34.0	95	0.0	n	135	12	0 A	8 P	2.33	
31	35	0 A	27	8 A	31.0	65	7.2	w	360	40				

*Based on least time required to blow one mile.

J. F. HANSON, *Observer*

MONTHLY SUMMARY

December, 1942		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.90, 27th	30.66	30.96, 1889
Minimum	28.57, 2nd	29.27	28.85, 1915
Mean semi-daily	30.027	30.06	
Range	2.33	1.38	1.78, 1895; 1.01, 1892
Air Temperature, in degrees F.			
Highest	53, 2nd	54.3	65.5, 1908
Lowest	−15, 20th, 21st	−1.9	−22.5, 1917
Mean	24.8	27.5	36.9, 1891; 17.1, 1917
Range	68	56.2	
Highest mean daily	37.5, 2nd		
Lowest mean daily	−5, 20th		
Mean maximum	32.5		
Mean minimum	17.1		
Greatest daily range	42, 22nd		
Least daily range	4, 24th, 29th		
Precipitation, in inches			
Precipitation	6.03	3.39	7.77, 1901; .87, 1896
Snow	7.00	8.50	26.50, '02; t, 1891
Maximum precipitation in 24 hrs.	2.33, 30th		
Number of days with .01 or more	10	10	17, 1902; 4, 1892
Wind, in miles			
Total movement	4967	4710	6,694, 1925; 3,239, 1918
Greatest daily movement	360, 31st		
Least daily movement	46, 25th		
Mean hourly velocity	6.7	6.3	
Maximum velocity	48, 2nd	31.4	48, 1938
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	3		
Northeast, days	0		
East, days	0		
Southeast, days	4		
South, days	1		
Southwest, days	1		
West, days	9		
Northwest, days	13		
Weather			
Mean relative humidity, percent	71.7	69.4	
Mean cloudiness, percent	58	54.9	71, 1929; '39, 1919
Number of clear days	14	8	15, 1890; 2, 1922, 1933
Number of fair days	2	9	16, '09; 4, '89 '30, '31, '36, '38
Number of cloudy days	15	14	23, '33; 7, '09, '23
Number hours bright sunshine	135	128	172, 1896; 63, 1933
Percent of possible hours of bright sunshine	47.7	45.2	
Thunder and lightning	2nd		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1941.

ANNUAL SUMMARY

Annual 1942		Normal	Extremes
Barometer, in inches			
(Readings reduced to sea level)			
Maximum	30.90, Dec. 27	30.81	31.05, 1920
Minimum	28.57, Dec. 2	28.95	28.41, 1938
Mean semi-daily	30.004	30.01	
Range	2.33	1.85	2.47, 1938; 1.38, 1933
Air Temperature, in degrees F.			
Highest	93, July 19	95.7	104, 1911
Lowest	–15, Dec. 20, 21	–12.2	–26, 1904
Mean	48.8	47.4	49.8, 1921; 44, 1904
Range	108	107.8	
Highest mean daily	80.5, Aug. 22		
Lowest mean daily	–5, Dec. 20		
Mean maximum	59.1	57.8	
Mean minimum	38.6	36.5	
Greatest daily range	44, Apr. 24, 25		
Least daily range	3, July 27		
Precipitation, in inches			
Precipitation	47.85	43.70	59.00, 1938; 30.68, 1908
Snow	33.75	47.78	89.00, 1893; 24.50, 1919
Maximum precipitation in 24 hrs.	233, Dec. 30		
Number of days with .01 or more	112	124	144, 1902; 96, 1924
Wind, in miles			
Total movement	50,246	52,223	63,571, 1908; 36,257, 1894
Greatest daily movement	475, Jan. 29		
Least daily movement	13, Jan. 1		
Mean hourly velocity	5.7	5.8	
Maximum velocity	48, Mar. 3, Dec. 2	39.5	80, 1938
Wind, direction			
Prevailing direction	W	W	
North, days	50		
Northeast, days	4		
East, days	4		
Southeast, days	58		
South, days	49		
Southwest, days	28		
West, days	56		
Northwest, days	116		
Weather			
Mean relative humidity, percent	70.9	67.6	
Mean cloudiness, percent	55	51.7	60, '98, '01, '02; 41, '08, '24
Number of clear days	165	116	217, 1941; 59, 1927
Number of fair days	102	123	182, 1912; 64, 1936
Number of cloudy days	98	126	179, '01, '02; 71, 1910, 1941
Number hours bright sunshine	2605	2,353	3038, 1941; 1864, 1902
Percent of possible hours of bright sunshine	58.5	52.8	
Last snow	Apr. 11	April 15	Mar. 14, '10; May 11, '07
First snow	Nov. 27	Nov. 6	Oct. 10, '25; Dec. 13, '41
Last frost	May 11	May 14	Apr. 23, '04; June 8, '32
First frost	Sept. 29	Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 649 January 1943

Meteorological Observations

FOR

JANUARY

1943

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	33	11 P	27	7 A	30.0	82	0.8	s	151	25			T	T
2	29	3 P	14	7 A	21.5	50	9.1	w	211	25				
3	32	1 P	20	8 A	26.0	59	8.8	w	158	17				
4	22	0 A	10	12 P	16.0	79	3.7	nw	144	28	0 A	5 P	.54	4.50
5	18	4 P	7	12 P	12.5	57	6.3	nw	268	25				
6	22	4 P	2	8 A	12.0	61	9.2	w	209	22				
7	29	3 P	4	8 A	16.5	67	9.2	w	121	17				
8	28	3 P	–4	7 A	12.0	81	9.3	w	46	7				
9	23	5 P	–3	7 A	10.0	74	9.3	nw	146	25				
10	30	3 P	4	4 A	17.0	75	9.3	nw	41	3				
11	34	12 P	0	6 A	17.0	80	5.0	s	76	17				
12	35	12 M	21	12 P	28.0	70	3.7	nw	202	22			T	T
13	25	2 P	14	8 A	19.5	58	9.4	nw	246	22				
14	32	12 P	9	8 A	20.5	73	7.7	se	108	9	11 P	12 P	.02	
15	41	2 P	24	12 P	32.5	75	4.8	se	203	17	0 A	4 A	.07	0.25
16	29	4 P	19	12 P	24.0	90	2.0	nw	83	10	6 A	12 M	.17	1.50
17	29	7 A	19	0 A	24.0	79	0.0	nw	124	14				
18	31	2 P	28	0 A	29.5	87	0.0	nw	120	10	8 A	8 P	.17	
19	35	4 P	14	12 P	24.5	88	0.8	nw	175	32	5 A	4 P	.70	T
20	16	4 P	9	11 P	12.5	68	8.4	w	344	28				
21	12	4 A	1	12 P	6.5	61	6.3	nw	233	25				
22	20	2 P	0	5 A	10.0	57	8.6	nw	140	14				
23	32	12 P	8	8 A	20.0	75	4.5	s	116	11	4 P	7 P	.10	
24	35	4 P	25	8 A	30.0	80	8.3	nw	83	25				
25	39	5 P	31	0 A	35.0	95	4.1	s	63	12			T	
26	39	4 A	25	12 P	32.0	69	0.0	nw	181	14	12 M	1 P	.04	.50
27	29	4 P	18	12 P	23.5	63	7.0	nw	180	16	4 A	5 A	.01	.25
28	24	12 M	17	4 A	20.5	83	0.0	nw	173	17	11 A	10 P	.93	9.00
29	35	4 P	19	0 A	27.0	66	8.4	nw	224	15				
30	23	3 P	19	1 A	21.0	84	2.9	nw	158	10	2 P	12 P	.17	3.25
31	42	2 P	21	0 A	31.5	86	7.1	nw	147	12				

*Based on least time required to blow one mile.

J. F. Hanson, *Observer*

MONTHLY SUMMARY

January, 1943		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.65, 29th, 30th	30.70	31.00, 1927
Minimum	29.36, 15th	29.20	28.55, 1913
Mean semi-daily	30.066	30.07	
Range	1.29	1.50	2.18, 1913; 0.97, 1896
Air Temperature, in degrees F.			
Highest	42, 31st	51.1	66.0, 1932
Lowest	–4, 8th	–7.1	–26.0, 1904
Mean	21.4	24.2	34.2, 1913; 13.9, 1918
Range	46	58.2	
Highest mean daily	35, 25th		
Lowest mean daily	6.5, 21st		
Mean maximum	29.1		
Mean minimum	13.6		
Greatest daily range	34, 11th		
Least daily range	3, 18th		
Precipitation, in inches			
Precipitation	2.92	3.61	7.15, 1898; 1.07, 1896
Snow	19.25	13.32	33, 1898, 1923; 1.50, '08
Maximum precipitation in 24 hrs.	0.93, 28th		
Number of days with .01 or more	11	11	15, '93, '20; 4, 1901
Wind, in miles			
Total movement	4874	5055	7770, 1908; 2896, 1895
Greatest daily movement	344, 20th		
Least daily movement	41, 10th		
Mean hourly velocity	6.6	6.8	
Maximum velocity	32, 19th	32.7	47, 1938
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	0		
Northeast, days	0		
East, days	0		
Southeast, days	2		
South, days	4		
Southwest, days	0		
West, days	6		
Northwest, days	19		
Weather			
Mean relative humidity, percent	73.3	70.1	
Mean cloudiness, percent	63	55	78, 1932; 37, 1908
Number of clear days	15	9	18, 1941; 2, 1914
Number of fair days	9	9	18, 1890, 1926; 3, 1916
Number of cloudy days	7	13	22, 1923, 1931; 4, 1920, 1939
Number hours bright sunshine	174	137	214, 1920; 74, 1932
Percent of possible hours of bright sunshine	59.2	46.7	
Thunder and lightning			

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1942.

REMARKS

The weather during January was more severe than usual. The mean temperature during the month was 21.4 degrees, while the normal mean temperature for January is 24.2 degrees. It should be noted, however, that the mean temperature during January, 1940 was 18.5 degrees and in 1941 it was 21.2 degrees. The lowest temperature was –4 degrees on the 8th and the highest 42 degrees on the 31st. The domestic heating load was 1352 degree-days compared to a normal of 1265 degree-days. The total heating load for the season to the end of January is 3902 degree-days which is slightly more than 2 percent higher than the normal of 3817 degree-days for this period. The heating load for the current year to the end of January is 57 percent of the normal annual load.

There was a total snowfall of 19.25 inches during the month. The normal snowfall during January is 13.32 inches. The total precipitation during January is 3.61 inches. The mean humidity during the month was 73.3 percent compared to a normal of 70.1 percent. The total wind movement during the month was 4874 miles, the normal being 5055 miles. The highest wind velocity was 32 miles per hour on the 19th.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 650 February 1943

Meteorological Observations

FOR

FEBRUARY

1943

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	40	2 P	26	0 A	33.0	74	4.8	w	166	28	5 A	11 A	.14	.50
2	30	2 P	16	12 P	23.0	61	10.0	w	361	28				
3	36	2 P	1	7 A	18.5	70	9.5	se	87	11				
4	39	8 P	28	0 A	33.5	88	0.0	se	204	15	8 A	8 P	.03	
5	45	4 P	27	12 P	36.0	71	10.1	w	129	18				
6	35	3 P	24	4 A	29.5	95	0.0	nw	62	11	7 A	12 P	.37	
7	38	11 A	30	12 P	34.0	88	5.0	sw	189	18	0 A	1 A	.03	
8	31	1 P	25	12 P	28.0	58	6.0	nw	356	32				
9	31	4 P	17	12 P	24.0	65	10.3	nw	259	18				
10	26	12 P	10	7 A	18.0	83	5.4	nw	67	12			T	
11	36	3 P	23	12 P	29.5	86	0.0	nw	92	32	1 A	7 P	.63	T
12	28	1 P	15	12 P	21.5	66	9.0	w	275	20				
13	25	10 P	8	6 A	16.5	88	0.3	nw	72	14	10 A	12 P	.32	4.00
14	25	3 A	0	12 P	12.5	64	10.5	w	247	28	0 A	3 A	.04	0.50
15	–8	2 P	–19	8 A	–13.5	59	10.5	nw	352	35				
16	16	4 P	–23	7 A	–3.5	61	10.6	nw	69	8				
17	27	3 P	–7	4 A	10.0	75	5.5	s	114	18				
18	23	5 P	7	8 A	15.0	58	10.0	nw	190	17				
19	37	4 P	18	6 A	27.5	61	6.5	se	84	8				
20	55	3 P	23	6 A	39.0	71	9.2	se	127	13				
21	52	3 P	32	12 P	42.0	64	10.8	nw	103	10			T	
22	55	4 P	25	7 A	40.0	68	9.0	s	48	7				
23	58	3 P	28	7 A	43.0	73	10.9	se	82	13				
24	47	12 M	33	12 P	40.0	83	0.5	se	147	20	12 M	3 P	.07	
25	35	11 A	17	12 P	26.0	60	11.4	nw	265	20				
26	28	4 P	11	7 A	19.5	72	5.4	nw	98	10				T
27	34	1 P	19	7 A	26.5	72	11.2	w	158	18				
28	45	12 P	23	0 A	34.0	63	6.6	s	269	28			T	

*Based on least time required to blow one mile.

J. F. HANSON, *Observer*

MONTHLY SUMMARY

February, 1943		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.50, 18th	30.63	31.05, 1920
Minimum	29.27, 7th	29.24	28.56, 1895
Mean semi-daily	29.947	30.04	
Range	1.23	1.38	1.89, '00, '08; .88, '13 '31
Air Temperature, in degrees F.			
Highest	58, 23rd	50.5	65.0, 1930
Lowest	–23, 16th	–7.4	–22.5, 1918
Mean	25.1	23.7	
Range	81	58	
Highest mean daily	43, 23rd		
Lowest mean daily	–13.5, 15th		
Mean maximum	34.6	32.8	
Mean minimum	15.6	14.5	
Greatest daily range	39, 16th		
Least daily range	6, 8th		
Precipitation, in inches			
Precipitation	1.63	3.19	8.12, 1900; 0.62, 1901
Snow	5.00	13.99	48.75, 1893; 0.50, 1937
Maximum precipitation in 24 hrs.	0.63, 11th		
Number of days with .01 or more	8	10	15, '93, '20; 4, 1901
Wind, in miles			
Total movement	4672	4776	6445, 1896; 3438, 1892
Greatest daily movement	361, 2nd		
Least daily movement	48, 22nd		
Mean hourly velocity	7	7.1	
Maximum velocity	35, 15th	31.7	48, 1934, 1937
Wind, direction			
Prevailing direction	W	WNW	
North, days	0		
Northeast, days	0		
East, days	0		
Southeast, days	6		
South, days	3		
Southwest, days	1		
West, days	6		
Northwest, days	12		
Weather			
Mean relative humidity, percent	71.3	66.6	
Mean cloudiness, percent	58	50.9	66, '90, '27; 31, 1905
Number of clear days	15	10	19, 1941; 2, 1927
Number of fair days	8	8	16, 1920; 2, 1936
Number of cloudy days	5	10	16,1894; 2, 1920
Number hours bright sunshine	199	158	221, 1924; 110, '27, '38
Percent of possible hours of bright sunshine	67.2	53.4	
Thunder and lightning	—		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1942.

REMARKS

The weather during February was extreme in many respects. There was less snow than usual but alternate periods of warm and cold weather produced more icy walks than normal. The snowfall during the month was 5 inches, while the normal snowfall during February is 13.99 inches. Only three years since 1889 has there been less snow in February. The total precipitation during the month was 1.63 inches, the normal being 3.19 inches. The mean temperature for the month was 25.1 degrees compared to a normal of 23.7 degrees. The highest temperature was 58 degrees on the 23rd. This has been exceeded only three times since 1889. The lowest temperature was -23 degrees on the 16th. This is the lowest temperature ever recorded at this station in February. Only twice have lower temperatures been recorded since 1889, -26 degrees in January 1904 and -23.5 in January 1907. The mean temperature on February 16 was -13.5 degrees which is the lowest mean daily temperature recorded at this station. The domestic heating load for the month was 1117 degree-days, the normal for February being 1165 degree-days. The total heating load for the season to the end of February is 5019 degree-days. The normal for this period is 4982 degree-days. The heating load for the season is therefore less than one percent higher than normal. The total wind movement was 4672 miles, slightly less than normal, and the highest wind velocity was 35 miles per hour on the 15th. There were 199 hours of bright sunshine, the normal for February being 158 hours. The mean relative humidity was 71.3 percent compared to a normal of 66.6 percent.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series   Bulletin No. 651   March 1943

Meteorological Observations

FOR

MARCH

1943

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N.   Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	37	4 P	26	8 A	31.5	58	9.2	w	136	22				T
2	29	4 P	21	8 A	25.0	55	8.0	nw	198	20				
3	29	3 P	7	12 P	18.0	81	0.0	nw	259	25	2 A	6 P	.17	2.25
4	21	4 P	1	4 A	11.0	61	11.3	nw	232	25				
5	40	1 P	20	0 A	30.0	54	11.3	se	315	25				
6	31	8 P	18	8 A	24.5	95	0.0	nw	177	15	6 A	10 P	.84	5.25
7	28	3 A	15	12 P	21.5	57	11.5	w	284	28				
8	24	2 P	8	7 A	16.0	54	11.5	nw	180	22				
9	26	4 P	–7	7 A	9.5	68	11.6	w	55	6				
10	44	9 P	18	3 A	31.0	86	1.0	nw	67	14				T
11	49	4 P	40	2 A	44.5	92	2.5	se	124	10	6 P	12 P	.12	
12	50	3 P	32	12 P	41.0	84	2.0	nw	144	17	0 A	8 A	.26	
13	38	1 P	28	3 A	33.0	83	0.0	nw	69	5				T
14	50	4 P	25	5 A	37.5	67	11.8	w	87	14				
15	56	4 P	27	7 A	41.5	68	11.8	se	119	17				
16	40	0 A	31	8 P	35.5	95	0.0	nw	114	8	5 A	8 P	.62	
17	37	7 P	30	7 A	33.5	95	0.3	nw	77	11	4 A	5 P	.19	
18	60	3 P	32	5 A	46.0	66	12.0	se	218	22			T	
19	45	2 P	33	4 A	39.0	60	0.5	nw	105	14	5 P	12 P	.83	
20	48	5 P	32	2 A	40.0	84	3.8	nw	106	25	0 A	1 A	.01	
21	40	3 P	29	7 A	34.5	68	9.6	nw	299	20				
22	41	2 P	30	7 A	35.5	38	10.6	nw	222	25				
23	40	4 P	26	5 A	33.0	38	11.1	nw	384	28				
24	50	5 P	24	6 A	37.0	45	9.7	s	119	14				
25	54	3 P	41	3 A	47.5	50	11.8	w	277	25				
26	68	4 P	30	6 A	49.0	47	11.7	sw	137	18				
27	53	1 P	38	8 A	45.5	41	9.8	nw	221	25				
28	44	2 P	26	12 P	35.0	40	12.5	nw	360	25				
29	40	3 P	20	6 A	30.0	39	12.5	nw	155	22				
30	34	9 P	24	0 A	29.0	72	0.0	se	78	8				T
31	38	4 P	31	2 A	34.5	85	0.6	se	62	9	0 A	12 M	.03	

*Based on least time required to blow one mile.

JOSEPH T. JODKA, *Observer*

MONTHLY SUMMARY

March, 1943		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	31.05, 9th	30.57	30.96, 1904
Minimum	29.43, 6th	29.24	28.47, 1914
Mean semi-daily	30.164	30.00	
Range	1.62	1.34	2.10, 1914; 0.85, 1915
Air Temperature, in degrees F.			
Highest	68, 26th	63.8	79.5, 1907, 1921
Lowest	–7, 9th	6.1	–7.5, 1906
Mean	32.9	34.4	
Range	75	57.6	
Highest mean daily	49, 26th		
Lowest mean daily	9.5, 9th		
Mean maximum	41.4	43.2	
Mean minimum	24.4	25.4	
Greatest daily range	38, 26th		
Least daily range	7, 17th, 31st		
Precipitation, in inches			
Precipitation	3.07	3.70	7.89, 1942; 0.12, 1915
Snow	7.50	7.47	27, 1899; 0, 1921
Maximum precipitation in 24 hrs.	.84, 19th, 20th		
Number of days with .01 or more	9	11	17, 1890, 1913, 1936; 3, 1915
Wind, in miles			
Total movement	5380	5944	8182, 1896; 3006, 1905
Greatest daily movement	384, 23rd		
Least daily movement	55, 9th		
Mean hourly velocity	7.2	7.7	
Maximum velocity	28, 7th, 23rd	31.2	48, 1932, 1939, 1941, 1942
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	0		
Northeast, days	0		
East, days	0		
Southeast, days	6		
South, days	1		
Southwest, days	1		
West, days	5		
Northwest, days	18		
Weather			
Mean relative humidity, percent	65.4	64.2	
Mean cloudiness, percent	51	51.8	
Number of clear days	19	11	22, 1924; 3, 1901
Number of fair days	1	10	17, 1900; 3, 1941
Number of cloudy days	11	10	21, 1901; 1, 1915
Number hours bright sunshine	220	199	292, 1924; 93, 1901
Percent of possible hours of bright sunshine	59	53.6	
Thunder and lightning	17th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1942.

REMARKS

The weather during March was somewhat colder than usual but near normal in other respects. The mean temperature for the month was 32.9 degrees while the normal for March is 34.4 degrees. The lowest temperature for the month was –7 degrees on March 9. Only once has there been a lower temperature in March since the station was established in 1889. A minimum of –7.5 degrees was recorded on March 24 in 1906. The low temperature of –7 on March 9 this year was accompanied with the highest barometer ever recorded at this station, a reading of 31.05 inches, corrected to sea level. The domestic heating load for the month was 995 degree-days, the normal being 950 degree-days. The total heating load of the season to the end of March is 6014 degree-days compared to a normal of 5932 degree-days. The heating load to the end of March represents 88 percent of a normal year's total heating load.

The snowfall during the month was 7.50 inches which is very near the normal snowfall for March. The total snowfall for the season is 38.75 inches while the normal snowfall to the end of March is 45.62 inches.

The total precipitation for the month was 3.07 inches, the normal being 3.70 inches. The total precipitation since January 1 is 8.31 inches. The normal precipitation for that period is 10.50 inches. There were 220 hours of bright sunshine compared to a normal of 199 hours.

Dr. J. K. Shaw, research pomologist, makes the following statement regarding vegetation: "The minimum temperature of the past winter was unusually low. As a result we may look for more winter injury to fruit trees than usual. The peach fruit buds in Massachusetts were practically all destroyed. More or less browning of the wood indicates wood injury. We shall have to wait until growth starts to tell how severe this will be. The more tender varieties of apples also show wood injury, while the hardier varieties show little or none. How severe this may be, also remains to be seen. The covering of snow at the time of the severe cold should have prevented injury to roots and low-growing plants. A few warm days in the latter half of the month have caused some bud swelling in early leafing trees and shrubs, but the month closed with colder weather, checking the development of vegetation."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 652 April 1943

Meteorological Observations

FOR

APRIL

1943

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature							Wind			Precipitation			
	Maximum		Minimum											
Day	Degrees	Time	Degrees	Time	Mean	Mean Relative Humidity	Number of Hours Bright Sunshine	Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	50	5 P	31	6 A	40.5	84	2.6	sw	62	6			T	
2	52	2 P	27	6 A	39.5	75	5.5	w	93	25	11 A	2 P	.05	
3	34	1 P	25	7 A	29.5	48	11.0	nw	450	32				
4	47	4 P	19	6 A	33.0	35	10.2	nw	203	18				
5	49	11 A	30	12 P	39.5	61	8.5	w	330	32	8 A	9 A	.01	
6	30	3 P	19	7 A	24.5	47	12.9	nw	481	32				
7	43	2 P	19	6 A	31.0	27	11.5	nw	283	28				
8	39	2 A	28	5 A	33.5	84	1.5	nw	64	8	2 A	2 P	.09	1.25
9	47	1 P	33	6 A	40.0	55	7.8	nw	172	28				
10	46	2 P	28	1 A	37.0	57	8.7	nw	219	32				T
11	48	4 P	27	1 A	37.5	44	13.2	nw	316	25				
12	50	12 M	23	5 A	36.5	66	6.7	se	165	32	2 P	10 P	.44	
13	58	2 P	37	5 A	47.5	48	9.3	w	245	22	9 P	12 P	.37	
14	41	4 P	30	3 A	35.5	66	11.8	w	305	25	0 A	4 A	.23	.50
15	40	4 P	23	5 A	31.5	54	13.3	w	223	22				
16	44	1 P	22	5 A	33.0	56	8.8	se	173	18				T
17	52	2 P	39	1 A	45.5	63	0.3	se	242	17	3 A	4 A	.01	
18	58	5 P	28	5 A	43.0	42	13.5	w	114	17				
19	47	11 A	35	12 P	41.0	72	0.5	n	171	22	12 M	12 P	.74	T
20	49	4 P	35	1 A	42.0	86	4.7	n	157	11	0 A	9 A	.20	
21	43	11 A	36	12 P	39.5	82	0.0	ne	82	11	12 M	10 P	.26	
22	57	5 P	35	3 A	46.0	76	6.6	nw	72	12	3 A	4 A	.01	
23	69	4 P	29	5 A	49.0	54	13.7	w	80	11				
24	70	3 P	39	6 A	54.5	46	11.5	se	189	17				
25	72	4 P	39	5 A	55.5	58	8.5	sw	147	22			T	
26	63	2 P	48	6 A	55.5	47	13.8	w	331	32				
27	62	2 P	32	5 A	47.0	54	9.5	se	149	28	4 P	12 P	.28	
28	60	11 A	39	12 P	49.5	73	7.3	w	256	39	0 A	3 A	.52	
29	59	2 P	34	5 A	46.5	39	13.8	w	247	35				
30	52	6 P	38	5 A	45.0	83	0.0	s	179	32	11 A	8 P	.45	

*Based on least time required to blow one mile.

Joseph T. Jodka, *Observer*

MONTHLY SUMMARY

	April 1943	Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.42, 18th	30.48	30.71, 1911
Minimum	28.98, 14th	29.38	28.99, 1907, 1929
Mean semi-daily	29.955	29.99	
Range	1.44	1.11	1.52, 1930; .72, 1919
Air Temperature, in degrees F.			
Highest	72, 25th	79.4	90, 1941
Lowest	19, 4th, 6th, 7th	22.0	8.5, 1923
Mean	41.0	45.7	52, 1921; 41.2, 1926
Range	53	57.4	
Highest mean daily	55.5, 25th, 26th		
Lowest mean daily	24.5, 6th		
Mean maximum	51.0	56.8	
Mean minimum	30.9	34.8	
Greatest daily range	40, 23rd		
Least daily range	7, 21st		
Precipitation, in inches			
Precipitation	3.66	3.35	6.89, 1929; .55, 1941
Snow	1.75	2.17	11, 1891; 0, 1910, 1934
Maximum precip. in 24 hrs.	0.94, 19th 20th		
Number of days with .01 or more	14	11	18, 1909; 3, 1892
Wind, in miles			
Total movement	6200	5404	8208, 1908; 3853, 1917
Greatest daily movement	481, 6th		
Least daily movement	62, 1st		
Mean velocity	8.6	7.5	
Maximum velocity	39, 28th	31.4	40, 1935, 1938, 1940
Wind, direction			
Prevailing direction	W	WNW	
North, days	2		
Northeast, days	1		
East, days	0		
Southeast, days	5		
South, days	1		
Southwest, days	2		
West, days	10		
Northwest, days	9		
Weather			
Mean relative humidity, percent	59.4	61.6	
Mean cloudiness, percent	55.7	51.8	75, 1901; 34, 1925, 1927
Number of clear days	10	11	23, 1941; 3, 1898, 1902
Number of fair days	12	9	18, 1915; 2, 1894, 1901
Number of cloudy days	6	10	22, 1901; 1, 1941
Number hours bright sunshine	247	220	329, 1941; 103, 1901
Percent of possible hours of bright sunshine	61.4	54.7	
Thunder and lightning	27th, 28th		
Last snow	April 14	Apr. 15	Mar. 14, 1910; May 11, 1907

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1942.

REMARKS

The weather during April was very cold with a mean temperature of 41 degrees. This is the lowest mean temperature for April recorded at this station since it was established in 1889. The normal mean temperature for April is 45.7 degrees. The lowest temperature was 19 degrees which occurred on the 4th, 6th and 7th. This is not unusually cold for this month. The domestic heating load for the month was 721 degree-days compared to a normal of 579 degree-days. The total heating load for the season is now 6735 degree-days while the normal heating load to the end of April is 6511 degree-days.

The total precipitation during April was 3.66 inches; the normal precipitation is 3.35 inches. The snowfall was 1.75 inches, the normal being 2.17 inches. The total snowfall for the past winter was 33.50 inches. The normal snowfall to the end of April is 36.95 inches. There were 247 hours of bright sunshine compared to a normal of 220 hours. The total wind movement was 6200 miles, while the normal for April is 5404 miles. The highest wind velocity was 39 miles per hour on the 28th. A very low barometer of 28.98 inches, corrected to sea level, was recorded on the 14th. This is the lowest barometer recorded at this station in April.

Dr. Shaw comments as follows: "Rarely has a month of April passed with so little advance in vegetation as in April, 1943. Buds have enlarged and grass has become green at the close of the month, but the stage of development is at least two weeks behind that of the corresponding date of last year. There is as yet no indication of severe winter injury to fruit plants. There will be no peach crop in Massachusetts. There is some tree injury, but at present there is no indication that it will prove to be severe. The wood shows some brown discoloration and the branch tips are killed in some cases. Unless there is unseasonably warm weather in early May, blooming dates of all fruits will be later than the average. This is likely to make harvesting dates later than usual, but the danger of injury to blossoms and young fruits from spring frosts will be decreased. Apple fruit buds are swelling and indicate a light bloom which would be expected considering the heavy crop of last season."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 653 May 1943

Meteorological Observations

FOR

MAY

1943

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	44	2 P	32	12 P	38.0	50	14.0	nw	459	32			T	
2	62	3 P	31	4 A	46.5	44	12.8	se	184	18				
3	55	6 P	42	5 A	48.5	91	0.0	se	208	17	0 A	4 P	.78	
4	53	12 M	40	12 P	46.5	62	4.6	nw	214	20				
5	68	4 P	34	5 A	51.0	42	13.7	nw	223	28				
6	66	4 P	37	6 A	51.5	63	4.8	se	81	13	7 P	9 P	.03	
7	81	1 P	46	5 A	63.5	65	10.7	sw	146	17	6 P	8 P	.04	
8	80	3 P	52	12 P	66.0	75	8.8	nw	108	32	4 P	9 P	.42	
9	72	3 P	47	5 A	59.5	48	14.4	nw	109	18				
10	55	5 P	47	3 A	51.0	90	0.0	nw	80	11	5 A	12 M	.08	
11	52	4 P	48	5 A	50.0	94	0.0	e	57	12	0 A	12 P	.81	
12	54	6 P	47	4 A	50.5	98	0.0	nw	65	13	0 A	7 P	.57	
13	71	1 P	46	5 A	58.5	54	12.5	nw	221	28				
14	68	3 P	44	5 A	56.0	40	14.5	nw	139	22				
15	72	5 P	34	5 A	53.0	44	14.6	nw	119	20				
16	67	3 P	47	1 A	57.0	69	4.8	se	164	14				
17	84	3 P	59	2 A	71.5	76	9.7	se	244	39	6 P	8 P	.09	
18	77	6 P	62	4 A	69.5	86	7.2	se	78	13	8 P	12 P	.65	
19	79	3 P	63	5 A	71.0	67	7.8	nw	100	13	0 A	12 P	.17	
20	70	5 P	53	5 A	61.5	88	8.3	nw	106	10	0 A	8 A	.29	
21	56	8 A	52	5 A	54.0	91	0.0	e	113	11	8 A	12 P	.75	
22	62	6 P	47	1 A	54.5	80	6.8	n	192	18	0 A	8 A	.17	
23	77	3 P	40	5 A	58.5	67	14.8	sw	120	14				
24	77	1 P	49	5 A	63.0	61	13.7	se	126	11				
25	72	2 P	48	5 A	60.0	69	13.7	se	139	14				
26	68	12 M	58	3 A	63.0	95	1.0	se	206	14	2 A	8 P	.72	
27	79	1 P	52	12 P	65.5	67	8.3	s	71	12	3 P	4-30 P	.05	
28	75	3 P	51	5 A	63.0	62	12.4	nw	91	20				
29	72	3 P	51	5 A	61.5	73	12.7	nw	123	14			T	
30	77	3 P	47	4 A	62.0	57	12.4	sw	51	6				
31	80	3 P	52	5 A	66.0	57	15.0	s	83	7				

*Based on least time required to blow one mile.

JOSEPH T. JODKA, *Observer*

MONTHLY SUMMARY

May 1943		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.54, 16th	30.39	30.62, 1936
Minimum	29.54, 1st	29.51	29.10, 1938
Mean semi-daily	30.039	29.96	
Range	1.00	0.88	
Air Temperature, in degrees F.			
Highest	84, 17th	86.1	94.5, 1896, 1911
Lowest	31, 2nd	31.2	24.0, 1900
Mean	57.8	57.1	
Range	53	54.9	
Highest mean daily	71.5, 17th		
Lowest mean daily	38.0, 1st		
Mean maximum	68.5		
Mean minimum	47.0		
Greatest daily range	38, 15th		
Least daily range	4, 11th		
Precipitation, in inches			
Precipitation	5.62	3.60	7.44, 1931; .48, 1903
Maximum precipitation in 24 hrs.	0.92, 21st, 22nd		
Number of days with .01 or more	15	12	20, 1901; 5, 1903
Wind, in miles			
Total movement	4420	4504	5946, 1907; 2180, 1894
Greatest daily movement	459, 1st		
Least daily movement	51, 30th		
Mean hourly velocity	5.9	6.1	
Maximum velocity	39, 17th	28.8	45, 1935
Wind, direction			
Prevailing direction	W	W	
North, days	1		
Northeast, days	0		
East, days	2		
Southeast, days	9		
South, days	2		
Southwest, days	3		
West, days	0		
Northwest, days	14		
Weather			
Mean relative humidity, percent	68.5	60.7	
Mean cloudiness, percent	60	52.1	70, 1901, 1902; 30, 1923
Number of clear days	14	11	20, 1923, 1941; 0, 1927
Number of fair days	11	11	17, 1907, 1926; 5, 1923
Number of cloudy days	6	9	20, 1927; 2, 1941
Number hours bright sunshine	274	252	338, 1941; 137, 1927
Percent of possible hours of bright sunshine	60.5	55.6	
Thunder and lightning	3rd, 8th, 12th, 17th, 18th, 19th, 27th		
Last frost	May 5	May 14	June 8, 1932; Apr. 23, 1904

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1942.

REMARKS

The outstanding feature of May weather was the large number of rainy days, with the rainfall considerably above normal. Rain fell on 15 days whereas the normal number of days of rain during May is 12. The total precipitation during the month was 5.62 inches, the normal for May being 3.60 inches. The total precipitation since January 1st is 16.90 inches, while the normal for this period is 17.45 inches.

The mean temperature during the month was 57.8 degrees compared to a normal of 57.1 degrees. The highest temperature was 84 on the 17th and the lowest temperature 31 on the 2nd. The domestic heating load during the month was 243 degree-days, while the normal for May is 267. The total heating load for the winter season is 6978 degree-days and the normal for this period is 6778 degree-days.

There were 274 hours of bright sunshine, the normal for May being 252 hours. The total wind movement for the month was 4420 miles compared to the normal for May of 4504 miles. The highest wind velocity was 39 miles on the 17th. The last frost occurred on May 5. The normal date of last frost is May 14.

Dr. J. K. Shaw, research pomologist, makes the following statement on the progress of vegetation: "At apple blossom time, the season, as measured by the date of full bloom of the McIntosh apple, was two weeks later than those of 1941 and 1942. The progress of all vegetation has been delayed by cool weather and frequent rains. Planting has been delayed by bad weather and wet soils. Conditions have favored the development of apple scab and made control difficult. Peach bloom was entirely wanting in our orchards and nearly so in all northern peach areas. Peaches will be scarce this season. Apple bloom was light on trees that bore heavily last year. The apple crop will be less than the heavy crop of last year. Peach trees were more or less injured by the severe winter cold and other tender or half-hardy trees show some injury, but at present, no material loss of trees is indicated. There is an abundant water supply in the soil and if warm sunny weather comes soon, fruit trees will progress rapidly."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series   Bulletin No. 654   June 1943

Meteorological Observations

FOR

JUNE

1943

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N.   Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean									
	Degrees	Time	Degrees	Time				Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	62	1 P	55	5 A	58.5	96	0.0	se	93	10	9:30 A	8P	.54	
2	85	3 P	58	5 A	71.5	87	9.3	s	119	17	6:30 A	8A	.05	
3	90	5 P	63	4 A	76.5	63	15.1	nw	104	13				
4	94	2 P	69	5 A	81.5	70	12.8	se	93	13				
5	81	3 P	68	5 A	74.5	50	15.2	nw	237	25	0 A	0:30A	.08	
6	76	1 P	49	5 A	62.5	63	12.9	nw	99	12				
7	61	0 A	48	4 P	54.5	88	0.0	nw	97	8	7 A	5:30P	.48	
8	73	2 P	50	2 A	61.5	62	14.6	nw	68	8				
9	75	1 P	52	5 A	63.5	64	11.4	se	61	6				
10	73	1 P	49	5 A	61.0	74	8.7	se	141	15	7 P	11:30P	.16	
11	78	4 P	55	0 A	66.5	66	15.2	nw	146	13				
12	82	3 P	49	5 A	65.5	66	15.3	w	83	11				
13	85	1 P	64	3 A	74.5	82	8.5	s	166	13	6:30 P	7P	.46	
14	83	5 P	59	5 A	71.0	75	15.1	n	105	13				
15	82	5 P	61	5 A	71.5	78	13.1	se	191	12				
16	84	2 P	68	1 A	76.0	79	13.7	nw	201	18				
17	75	12 A	54	4 A	64.5	81	8.5	se	104	11	6:30 P	11:30P	.28	
18	81	2 P	60	0 A	70.5	71	15.1	w	195	25				
19	81	3 P	61	4 A	71.0	70	12.2	w	114	17				
20	91	3 P	62	5 A	76.5	72	11.5	sw	105	32	5:30 P	6P	.14	
21	88	1 P	63	5 A	75.5	72	12.3	se	75	10	2 P	3P	.16	
22	92	3 P	63	5 A	77.5	75	11.9	se	163	15				
23	86	5 P	60	5 A	73.0	71	15.3	nw	100	10				
24	90	4 P	56	5 A	73.0	76	15.3	sw	103	13				
25	94	2 P	66	6 A	80.0	68	15.3	w	158	17				
26	95	2 P	68	5 A	81.5	74	12.6	sw	100	18	7:30 P	8P	.01	
27	93	2 P	74	3 A	83.5	76	15.3	w	94	11				
28	95	1 A	71	2 A	83.0	78	9.2	s	155	15	9 P	9:30P	.02	
29	78	1 A	64	12 P	71.0	85	6.5	s	116	11			T	
30	68	1 P	54	5 A	61.0	77	14.1	nw	223	18				

*Based on least time required to blow one mile.

STANLEY KISIEL, *Observer*

MONTHLY SUMMARY

JUNE, 1943		Normal	Extremes
Barometer, in inches			
(Readings reduced to sea level)			
Maximum	30.22, 9th	30.30	30.54, 1889
Minimum	29.46, 2nd	29.55	29.24, 1902
Mean semi-daily	29.942	29.95	
Range	0.76	0.75	
Air Temperature, in degrees F.			
Highest	95, 26th, 28th	91.2	101, 1919
Lowest	48, 7th	40.0	34, 1891
Mean	71.1	65.7	
Range	47	51.3	
Highest mean daily	83.5, 27th		
Lowest mean daily	54.5, 7th		
Mean maximum	82.4		
Mean minimum	60.0		
Greatest daily range	34, 24th		
Least daily range	7, 1st		
Precipitation, in inches			
Precipitation	2.38	3.75	9.68, 1922; 0.76, 1908
Snow	—		
Maximum precipitation in 24 hrs.	.59, 1st, 2nd		
Number of days with .01 or more	11	11	17, 1922; 4, 1908
Wind, in miles			
Total movement	3809	3585	4571, 1908; 1409, 1906
Greatest daily movement	237, 5th		
Least daily movement	61, 9th		
Mean hourly velocity	5.3	5.0	
Maximum velocity	32, 20th	24.6	48, 1939
Wind, direction			
Prevailing direction	WSW	WSW	
North, days	1		
Northeast, days	0		
East, days	0		
Southeast, days	8		
South, days	4		
Southwest, days	3		
West, days	5		
Northwest, days	9		
Weather			
Mean relative humidity, percent	73.6	66.9	
Mean cloudiness, percent	52	51.1	71, 1903; 28, 1908
Number of clear days	22	10	22, 1908, 1941; 1, 1927
Number of fair days	6	12	23, 1912; 3, 1941
Number of cloudy days	2	8	22, 1903; 1, 1923
Number hours bright sunshine	356	257	362, 1908; 102, 1903
Percent of possible hours of bright sunshine	77.9	54.0	
Thunder and lightning	1st, 5th, 13th, 17th, 20th, 26th, 28th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1942.

REMARKS

The weather during June was unusually hot with less rain than normal. The mean temperature for the month was 71.1 degrees which is the highest mean temperature for June recorded at this station. The normal mean temperature is 65.7 degrees. The nine days of June 20th to June 28th had maximum temperatures in the nineties except for two days when the maximum was 86 and 88. The highest temperature was 95 degrees which occurred on the 26th and 28th. In spite of the high temperatures throughout the month, there were 8 days when the mean temperature was less than 65 degrees. The heating load for the month was accordingly 33 degree-days. This brings the total heating load for the season to 7011 degree-days. The normal heating load for the year is 6846 degree-days, so the past season was 2.4 percent colder than normal.

The rainfall during June was 2.38 inches compared to a normal of 3.75 inches. The total rainfall since January 1 is now 19.28 inches, the normal for this period being 21.20 inches. There was a total of 356 hours of bright sunshine compared to a normal of 257 hours.

Dr. J. K. Shaw, research pomologist, gives the following statement regarding vegetation: "The cool, wet weather of this spring came to an end for the last ten days of June and was succeeded by an unusually hot period with little or no rain. The sudden change to hot, sunny days caused shoots of succulent foliage to wilt and even show dry, dead areas. However, the injury is not enough to affect crops. Most fruit crops continued to make normal progress. The strawberry crop was a little late and below normal. Raspberries will also be light due to winter injury to the canes. The wet, cool spring favored a heavy hay crop and so far, harvesting weather has been favorable. Fruit trees show considerable wood injury from the severe cold of last winter, yet few have been entirely killed. The wood of peach trees in the nursery is almost completely dead, but most of the trees are growing vigorously. Evidently the cambium layer was not injured and plenty of rain enabled the trees to start a good recovery. The same is true of many varieties of sweet cherries, but recovery is not so good. While cold injury is rather more severe than usual, no great damage is yet apparent except for the loss of the peach crop."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 655 July, 1943

Meteorological Observations

FOR

JULY

1943

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	73	2 P	46	5 A	59.5	80	15.2	nw	140	20				
2	80	2 P	43	5 A	61.5	76	15.3	nw	41	8				
3	81	2 P	49	4 A	65.0	75	13.7	se	113	13				
4	78	3 P	61	4 A	69.5	89	7.6	se	153	12			T	
5	74	4 P	66	2 A	70.0	96	2.1	se	213	18	0 A	9:30 A	.77	
6	84	3 P	61	5 A	72.5	76	13.7	nw	106	13			T	
7	73	11 A	58	5 A	65.5	89	6.1	n	141	15	6 P	8:30 P	.03	
8	82	2 P	61	3 A	71.5	81	10.2	nw	125	13				
9	86	4 P	65	5 A	75.5	82	10.5	nw	52	7				
10	92	2 P	66	5 A	79.0	79	12.3	w	70	9				
11	88	1 P	67	5 A	77.5	90	7.2	s	61	7	4:30 P	5 P	.02	
12	90	12 M	72	5 A	81.0	84	10.1	s	82	13	12:30 P	1 P	.04	
13	85	4 P	70	12 M	77.5	94	7.3	s	83	9	10:30 A	12 M	.09	
14	83	12 M	68	4 A	75.5	92	7.2	se	69	17	1:30 P	5:30 P	.26	
15	86	6 P	64	12 P	75.0	81	12.2	w	133	15				
16	83	3 P	64	0 A	73.5	75	15.0	w	205	18				
17	87	3 P	53	5 A	70.0	76	13.2	se	39	14				
18	87	1 P	64	12 P	75.5	78	13.1	nw	153	15				
19	81	3 P	57	5 A	69.0	75	15.0	nw	147	18				
20	86	2 P	49	3 A	67.5	79	11.7	s	96	12	5 P	9 P	.92	
21	87	4 P	60	5 A	73.5	80	13.7	s	64	9	8 P	12 P	.17	
22	83	3 P	64	12 P	73.5	91	6.3	se	108	18	0 A	6 P	1.05	
23	84	5 P	62	2 A	73.0	80	14.8	nw	101	13				
24	87	5 P	58	4 A	72.5	78	14.8	sw	46	5				
25	84	2 P	64	3 A	74.0	86	13.0	se	61	11	10:30 P	12 P	.45	
26	82	5 P	64	4 A	73.0	92	11.6	nw	60	5	0 A	12:30 P	.06	
27	88	3 P	62	3 A	75.0	81	10.6	s	60	18	8:30 P	10 P	.51	
28	86	3 P	65	12 P	75.5	82	14.5	sw	50	5	8 P	8:30 P	.01	
29	67	5 P	62	3 A	64.5	99	0.0	nw	48	8	9 A	12 P	1.40	
30	81	5 P	61	12 P	71.0	86	11.8	nw	70	8	0 A	1 A	.01	
31	84	5 P	56	5 A	70.0	85	12.2	s	68	25	5:30 P	8 P	.39	

*Based on least time required to blow one mile.

Stanley Kisiel, *Observer*

MONTHLY SUMMARY

July 1943		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.38, 2nd	30.27	30.50, 1892
Minimum	29.67, 30th	29.59	29.27, 1932
Mean semi-daily	29.962	29.96	
Range	0.71	0.68	0.97, 1892; 0.47, 1938
Air Temperature, in degrees F.			
Highest	92, 10th	93.9	104, 1911
Lowest	43, 2nd	46.4	40, 1890, 1898
Mean	71.8	70.8	74.7, 1921; 66.3, 1891
Range	49	47.7	
Highest mean daily	81, 12th		
Lowest mean daily	59.5, 1st		
Mean maximum	83.0		
Mean minimum	60.7		
Greatest daily range	37, 2nd, 20th		
Least daily range	5, 29th		
Precipitation, in inches			
Precipitation	6.18	4.10	14.51, 1897; 0.70, 1929
Snow	—		
Maximum precipitation in 24 hrs.	1.40, 29th		
Number of days with .01 or more	16	11	20, 1915; 4, 1924
Wind, in miles			
Total movement	2966	3422	5097, 1909; 1109, 1894
Greatest daily movement	213, 5th		
Least daily movement	39, 17th		
Mean hourly velocity	4.0	4.6	
Maximum velocity	25, 31st	28.7	44, 1936
Wind, direction			
Prevailing direction	WSW	SW	
North, days	1		
Northeast, days	0		
East, days	0		
Southeast, days	7		
South, days	7		
Southwest, days	2		
West, days	3		
Northwest, days	11		
Weather			
Mean relative humidity, percent	83.2	68.4	
Mean cloudiness, percent	70	50.9	69, 1914; 31, 1924
Number of clear days	20	10	22, 1923; 0, 1915
Number of fair days	9	14	24, '09, '21; 5, '89, '23, '28, '36
Number of cloudy days	2	7	18, 1889; 0, 1910
Number hours bright sunshine	342	268	371, 1910; 180, 1931
Percent of possible hours of bright sunshine	74	58	
Thunder and lightning	11th, 13th 20th, 21st, 22nd, 27th, 31st		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1942.

REMARKS

July weather was slightly warmer than normal, with heavy showers during the latter part of the month. The mean temperature for the month was 71.8 degrees compared to a normal of 70.8 for July. It will be recalled that the mean temperature for June was 71.1 degrees. The highest temperature during the month was 92 degrees on the 10th and the lowest, 43 on the 2nd. The rainfall during the month was 6.18 inches while the normal for July is 4.10 inches. Only one other year since 1928 had greater rainfall in July. In 1938, 7.45 inches was recorded and in 1928, 6.23 inches. The total rainfall since January 1 is now 25.46 inches compared to a normal of 25.30 inches for this period. There were 342 hours of bright sunshine during the month, while the normal for July is 268 hours. Twenty days classified as "clear", nine as "fair" and two as "cloudy". Thunderstorms occurred on seven days.

Dr. J. K. Shaw of the Pomology Department makes the following report: "Vegetation made good progress during July. Dry weather during the early part of the month checked the progress of shallow-rooted plants, and excessively drained lawn soils showed dry, brown areas of grass. Frequent showers during the latter part of the month corrected this deficiency and the month closes with the soil well supplied with moisture. A hail storm did considerable damage to tobacco and fruit crops in a limited area in Amherst.

"The strawberry crop was below normal and winter injury to raspberry canes has reduced the crop. The blueberry crop is about normal. Apple scab on unsprayed McIntosh is very severe owing to frequent rains while the foliage was expanding. It was well controlled on properly sprayed trees but there is likely to be more scabby McIntosh than usual."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 656 August, 1943

Meteorological Observations

FOR

AUGUST

1943

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	87	5 P	57	4 A	72.0	81	11.2	sw	46	6				
2	92	2 P	62	6 A	77.0	75	14.5	se	101	11				
3	89	2 P	70	6 A	79.5	88	9.4	s	161	11	4 P	8 P	.67	
4	81	4 P	69	5 A	75.0	83	5.4	se	124	11				
5	75	0 A	61	12 P	68.0	82	9.5	nw	135	13	0 A	1 A	.08	
6	81	2 P	55	6 A	68.0	72	14.3	nw	114	22				
7	75	12 M	51	5 A	63.0	73	9.0	sw	55	14	9:30 P	11 P	.04	
8	82	5 P	61	5 A	71.5	84	10.3	sw	40	4				
9	82	3 P	61	5 A	71.5	73	12.4	nw	53	10				
10	68	11 A	60	12 P	64.0	92	0.0	e	52	7	6 A	10 A	.32	
11	79	3 P	60	5 A	69.5	89	7.8	s	68	12	4 P	5 P	.07	
12	76	2 P	64	5 A	70.0	87	3.7	se	87	12	9 P	12 P	.75	
13	80	2 P	65	5 A	72.5	89	2.8	se	141	14	0 A	2 A	.16	
14	89	3 P	67	11 P	78.0	85	10.9	w	169	13	4:30 A	5:30 A	.29	
15	79	3 P	58	12 P	68.5	76	14.0	w	162	18				
16	78	1 P	54	5 A	66.0	84	5.4	se	102	13			T	
17	78	4 P	61	5 A	69.5	75	13.9	w	123	13				
18	75	12 M	54	5 A	64.5	75	13.8	nw	133	22				
19	75	4 P	49	5 A	62.0	74	13.8	nw	84	12				
20	82	3 P	46	5 A	64.0	69	13.7	sw	38	6				
21	83	2 P	53	5 A	68.0	63	10.0	se	46	6				
22	83	3 P	58	5 A	70.5	65	8.4	se	64	6			T	
23	89	3 P	55	6 A	72.0	67	13.6	se	69	7				
24	85	3 P	55	5 A	70.0	78	6.2	se	98	12	11 P	11:30P	.06	
25	85	2 P	63	7 A	74.0	73	13.5	nw	62	10				
26	76	1 P	60	5 A	68.0	60	13.5	nw	168	18				
27	67	12 M	45	5 A	56.0	74	5.6	nw	39	7	2:30 P	12 P	.04	
28	74	5 P	57	5 A	65.5	82	8.6	nw	87	10	0 A	0:30 A	.01	
29	77	5 P	48	7 A	62.5	78	8.3	e	54	8			T	
30	80	5 P	54	7 A	67.0	80	10.2	sw	70	6				
31	83	5 P	55	6 A	69.0	73	13.3	w	74	12				

*Based on least time required to blow one mile.

Stanley Kisiel, *Observer*

MONTHLY SUMMARY

August, 1943		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.15, 29th	30.32	30.50, 1934
Minimum	29.51, 17th	29.61	28.87, 1930
Mean semi-daily	29.910	30.00	
Range	0.64	0.71	
Air Temperature, in degrees F.			
Highest	92, 2nd	91.6	100, 1918
Lowest	45, 27th	43.4	37, 1894, 1908
Mean	68.9	68.6	34, 1940
Range	47	48.1	
Highest mean daily	79.5, 3rd		
Lowest mean daily	56.0, 27th		
Mean maximum	80.2		
Mean minimum	57.7		
Greatest daily range	36, 20th		
Least daily range	8, 10th		
Precipitation, in inches			
Precipitation	2.49	4.08	8.40, 1928; .31, 1894
Snow	—		
Maximum precipitation in 24 hrs.	.91, 12th, 13th		
Number of days with .01 or more	11	11	16, 1892, 1933; 4, 1899
Wind, in miles			
Total movement	2819	3127	4,271, 1910; 1,920, 1894
Greatest daily movement	169, 14th		
Least daily movement	38, 20th		
Mean hourly velocity	3.8	4.2	
Maximum velocity	22, 6th, 18th	22.7	40, 1941
Wind, direction			
Prevailing direction	W	SW	
North, days	0		
Northeast, days	0		
East, days	2		
Southeast, days	9		
South, days	2		
Southwest, days	5		
West, days	4		
Northwest, days	9		
Weather			
Mean relative humidity, percent	77.4	70.2	
Mean cloudiness, percent	56	49.7	67, 1901; 27, 1923
Number of clear days	18	9	23, 1941; 0, 1915, 1929
Number of fair days	10	13	25, 1912; 3, 1939
Number of cloudy days	3	9	18, 1901, '28; 2, 1910, '23
Number hours bright sunshine	307	237	332, 1941; 152, 1915, 1929
Percent of possible hours of bright sunshine	71.5	55.2	
Thunder and lightning	3rd, 12th		
First frost	—	Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1942.

REMARKS

The weather during August was very near normal in most respects. The rainfall was less than usual with a total precipitation of only 2.49 inches, while the normal for August is 4.08 inches. The total precipitation since January 1 is now 27.95 inches, the normal for that period being 29.38 inches. The mean temperature for the month was 68.9 degrees. The normal mean temperature for August is 68.6 degrees. There were 307 hours of bright sunshine which is well above the average, the normal for August being 237 hours. Wind travel was slightly less than usual, with only 2819 miles. No high winds were recorded.

Dr. J. K. Shaw, research pomologist, makes the following report on vegetation: "The weather during August was characterized by much cloudy, humid weather for the early part of the month. This resulted in some rotting and other disease injury to fruit and vegetable plants. The weather later in the month was less humid with many fair or clear days. The moisture supply continues ample. The appearance of dried out areas in lawns is one of the first signs of lack of rainfall. Except for a period in early July, lawns have presented a good appearance all summer. With the approach of shorter days and cooler weather and consequently a lessened demand for water by vegetation, there can be little damage from drouth this year. The apple crop is sizing and coloring fairly well, and the prospects are for a crop considerably below the unusually large crop of last year but not above the average of recent years."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 657 September 1943

Meteorological Observations

FOR

SEPTEMBER

1943

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	83	5 P	59	5 A	71.0	87	6.4	se	40	6	7 A	8 A	.11	
2	69	2 A	58	12 P	63.5	80	0.3	ne	85	13			T	
3	65	12 M	56	5 A	60.5	82	0.6	nw	104	7				
4	70	4 P	59	5 A	64.5	84	3.5	nw	79	16				
5	79	4 P	64	6 A	71.5	91	3.4	se	52	8			T	
6	88	3 P	70	2 A	79.0	83	7.2	se	117	8			T	
7	91	3 P	69	12 P	80.0	85	6.6	se	106	13	3:30 P	6 P	.78	
8	73	2 P	58	12 P	65.5	77	2.4	nw	75	10				
9	81	3 P	54	7 A	67.5	83	3.6	sw	52	22	6 P	9:30 P	.15	
10	73	4 P	53	7 A	63.0	67	8.6	nw	105	11	6 A	8 A	.06	
11	74	3 P	44	4 A	59.0	70	10.5	sw	72	11				
12	68	3 P	40	6 A	54.0	67	12.7	nw	105	12				
13	71	5 P	38	7 A	54.5	79	12.6	w	56	7				
14	76	2 P	41	7 A	58.5	80	8.6	e	70	12				
15	75	5 P	56	6 A	65.5	86	8.3	nw	123	13	0:30 A	4 A	1.26	
16	80	1 P	54	4 A	67.0	80	4.6	se	108	22				
17	67	1 P	46	12 P	56.5	74	8.6	nw	118	17				
18	64	4 P	38	7 A	51.0	66	12.4	nw	128	17				
19	72	3 P	34	6 A	53.0	70	10.3	se	50	7				
20	75	2 P	35	6 A	55.0	74	6.1	s	83	8				
21	73	3 P	48	6 A	60.5	81	10.3	nw	69	9				
22	71	2 P	52	7 A	61.5	82	7.3	nw	111	10			T	
23	76	1 P	54	12 P	65.0	71	9.6	nw	116	17				
24	69	2 P	47	12 P	58.0	71	6.4	nw	93	13				
25	63	2 P	42	7 A	52.5	62	9.2	nw	154	13				
26	62	3 P	34	5 A	48.0	59	12.0	w	111	7				
27	74	4 P	39	6 A	56.5	56	12.0	s	120	13				
28	82	3 P	39	7 A	60.5	71	11.9	s	47	7				
29	69	2 P	52	7 A	60.5	59	11.7	nw	141	13				
30	57	3 P	45	1 A	51.0	79	0.3	nw	177	17	12 M	9:30 P	.04	

*Based on least time required to blow one mile.

Stanley Kisiel, *Observer*

MONTHLY SUMMARY

September, 1943		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.55, 29th	30.45	30.65, 1924
Minimum	29.78, 7th	29.57	28.41, 1938
Mean semi-daily	30.123	30.06	
Range	0.77	.88	1.99, 1938; .57, 1910
Air Temperature, in degrees F.			
Highest	91, 7th	87.7	97, 1895, 1929
Lowest	34, 19th, 26th	33.2	24.5, 1914
Mean	61.1	61.7	
Range	57	54.5	
Highest mean daily	80, 7th		
Lowest mean daily	48, 26th		
Mean maximum	73.0		
Mean minimum	49.3		
Greatest daily range	43, 28th		
Least daily range	9, 3rd		
Precipitation, in inches			
Precipitation	2.40	4.26	14.55, 1938; .52, 1914
Snow	—		
Maximum precipitation in 24 hrs.	1.26, 15th		
Number of days with .01 or more	6	10	16, 1933; 3, 1903
Wind, in miles			
Total movement	2867	3271	4,686, 1896; 1,414, 1894
Greatest daily movement	177, 30th		
Least daily movement	40, 1st		
Mean hourly velocity	4.0	4.5	
Maximum velocity	22, 9th, 16th	25.9	80, 1938
Wind, direction			
Prevailing direction	WNW	WSW	
North, days	0		
Northeast, days	1		
East, days	1		
Southeast, days	6		
South, days	3		
Southwest, days	2		
West, days	2		
Northwest, days	15		
Weather			
Mean relative humidity, percent	75.2	73.6	
Mean cloudiness, percent	61	49.9	70, 1934; 27, 1908, 1914
Number of clear days	12	10	19, 1932; 2, 1907, 1928
Number of fair days	11	10	19, 1908; 3, 1889
Number of cloudy days	7	10	20, 1934; 3, 1941
Number hours bright sunshine	228	201	255, 1916; 106, 1934
Percent of possible hours of bright sunshine	61.1	54.9	
Thunder and lightning	7th, 9th		
First frost	....	Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1942.

REMARKS

The weather during September was slightly cooler than usual, with less precipitation than normal. The total precipitation for the month was only 2.40 inches, and half of this amount fell in one storm on the 15th. The normal for September is 4.26 inches. August also had less rainfall than normal, with 2.49 inches recorded during that month. The total rainfall since the first of the year is now 30.35 inches. The normal for this period is 33.62 inches.

The mean temperature for the month was 61.1 degrees compared to a normal of 61.7 degrees for September. The highest temperature was 91 degrees on the 7th and the lowest, 34 degrees on the 19th and 26th.

The domestic heating load for the month was 163 degree-days. The normal for September is 149 degree-days.

There were 228 hours of bright sunshine compared to a normal of 201 hours for September. The total wind movement was 2867 miles, while the normal is 3271 miles. No high winds were recorded during the month.

Dr. Shaw's report on vegetation states: "The month of September is the final month of the season of vegetation. Perennial plants later go into the winter rest period. No general severe killing frost has occurred, but there was enough just after the middle of the month to partially or completely kill tender vegetation, the severity of injury depending on the location of the plants.

"The month has been dry. Coming so late in the growing season, it has not done much damage; but unless we have more abundant rains during the next two months, there will be a marked deficiency of soil moisture this winter.

"The spring was late which, combined with heavy precipitation, delayed planting. No severe drouth periods have occurred. The season has, on the whole, been quite favorable to most crops."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 658 October 1943

Meteorological Observations

FOR

OCTOBER

1943

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	65	3 P	52	0 A	58.5	92	0.2	nw	132	10	4:30 P	11 P	.22	
2	71	4 P	53	12 P	62.0	87	3.5	nw	55	15	4:30 A	9:30 A	.17	
3	58	1 P	48	12 P	53.0	67	2.3	nw	208	14				
4	57	11 A	41	12 P	49.0	68	2.4	n	168	13				
5	56	1 P	32	6 A	44.0	73	6.6	nw	105	17				
6	70	3 P	28	7 A	49.0	59	11.5	s	58	13				
7	78	3 P	37	4 A	57.5	50	11.5	nw	132	18				
8	75	4 P	42	7 A	58.5	69	11.4	se	64	7				
9	80	2 P	44	6 A	62.0	63	11.4	w	109	28				
10	54	3 P	29	12 P	41.5	54	11.3	nw	252	18				
11	61	3 P	23	6 A	42.0	64	11.3	sw	33	8				
12	70	4 P	26	7 A	48.0	62	11.3	sw	44	4				
13	75	3 P	32	6 A	53.5	55	11.2	sw	44	9				
14	74	2 P	47	5 A	60.5	68	4.3	se	145	11				
15	74	2 P	61	6 A	67.5	77	3.4	se	102	15	4 P	12 P	.64	
16	69	1 P	61	7 A	65.0	95	0.3	e	147	25	0 A	12 P	.69	
17	68	0 A	42	12 P	55.0	64	6.3	w	211	18	1:30 A	8 A	.38	
18	54	11 A	39	3 A	46.5	68	2.0	se	112	10				
19	51	12 M	38	6 A	44.5	68	3.4	w	110	18	4 A	5 A	.03	
20	52	3 P	37	3 A	44.5	67	0.8	nw	165	18			T	
21	59	2 P	46	7 A	52.5	60	5.5	nw	236	22				
22	57	1 P	45	7 A	51.0	65	4.0	nw	104	13				
23	54	1 P	44	12 P	49.0	70	0.7	w	63	10				
24	51	1 P	38	9 P	44.5	67	6.4	nw	147	12			T	
25	46	1 P	34	5 A	40.0	72	1.9	n	130	13				
26	46	12 P	41	8 A	43.5	89	0.0	n	206	17	6 A	11 P	.85	
27	53	2 P	45	0 A	49.0	90	0.0	nw	228	25	5:30 A	8 A	.78	
28	57	6 P	48	6 A	52.5	87	0.0	nw	168	25	12 M	9 P	.12	
29	55	2 P	47	3 A	51.0	59	1.9	sw	294	25				
30	59	2 P	47	7 A	53.0	49	1.7	w	208	22				
31	52	1 P	38	3 A	45.0	60	10.5	w	231	22				

*Based on least time required to blow one mile.

Stanley Kisiel, *Observer*

MONTHLY SUMMARY

October, 1943		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.53, 11th	30.53	30.68, 1929
Minimum	29.15, 4th	29.42	29.00, 1926
Mean semi-daily	29.971	30.06	
Range	1.38	1.11	1.47, 1926; .76, 1899
Air Temperature, in degrees F.			
Highest	80, 9th	79.4	90.5, 1908
Lowest	23, 11th	23.4	17, 1936
Mean	51.4	50.5	56.4, 1920; 43.2, 1890
Range	57	56.0	
Highest mean daily	67.5, 15th		
Lowest mean daily	40.0, 25th		
Mean maximum	61.3		
Mean minimum	41.5		
Greatest daily range	44, 12th		
Least daily range	5, 26th		
Precipitation, in inches			
Precipitation	3.88	3.29	8.81, 1911; .01, 1924
Snow	0		
Maximum precipitation in 24 hrs.	1.63, 26th, 27th		
Number of days with .01 or more	9	9	15, 1913; 1, 1897, 1924
Wind, in miles			
Total movement	4411	4074	5,467, 1910; 2,540, 1894
Greatest daily movement	294, 29th		
Least daily movement	33, 11th		
Mean hourly velocity	6.0		
Maximum velocity	28, 9th	29.5	42, 1937
Wind, direction			
Prevailing direction	WNW	W	
North, days	3		
Northeast, days	0		
East, days	1		
Southeast, days	4		
South, days	1		
Southwest, days	4		
West, days	6		
Northwest, days	12		
Weather			
Mean relative humidity, percent	69.0	69.0	
Mean cloudiness, percent	64	48	67, 1932; 18, 1924
Number of clear days	9	10	21, 1938; 1, 1911
Number of fair days	8	10	17, 1924; 3, 1938
Number of cloudy days	14	11	19, 1896; 3, 1924
Number hours bright sunshine	159	175.0	232, '23, '38; 91, 1913
Percent of possible hours of bright sunshine	46.6	51.3	
Thunder and lightning	27th		
First Frost	Oct. 6	Sept. 21	Aug. 22, '94, '95; Oct. 15, '39

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1942.

REMARKS

October was slightly warmer than usual, with more precipitation than normal. There were many pleasant days the first part of the month. The dry spell which prevailed in September continued until the 15th of October, and only half an inch of rain was recorded during the period from September 15 to October 15. However, heavy rains during the latter part of the month brought the total rainfall for October to 3.88 inches. The normal for October is 3.29 inches. The total rainfall since the first of the year is now 34.23 inches, which is 2.68 inches less than normal for this period.

The mean temperature for the month was 51.4 degrees, which is .9 degree warmer than normal. The highest temperature was 80 degrees on the 9th, and the lowest, 23 on the 11th.

The domestic heating load for October was 422 degree-days, and the total load for September and October is 585 degree-days. The normal heating load for September and October is 605 degree-days.

The first killing frost was late this year, October 6 being the date at this station. The normal date for first frost is September 21 and last year it occurred on September 29.

There was less sunshine and more wind than normal.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 659 November 1943

Meteorological Observations

FOR

NOVEMBER

1943

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	60	2 P	27	7 A	43.5	67	10.3	se	63	8				
2	55	1 P	42	0 A	48.5	90	0.0	se	144	11	1 P	6:30 P	.34	
3	54	12 M	36	12 P	45.0	60	5.5	w	172	20			T	
4	53	1 P	34	3 A	43.5	72	3.7	w	72	13				
5	55	2 P	34	6 A	44.5	73	1.8	se	72	13	11:30 P	12 P	.04	
6	63	1 P	37	12 P	50.0	69	0.0	s	131	14	0 A	2 A	.16	
7	61	2 P	32	6 A	46.5	69	7.5	sw	53	8				
8	64	12 P	38	1 A	51.0	96	0.0	nw	62	22	8 A	12 P	.97	
9	66	4 A	38	12 P	52.0	72	0.0	w	244	28	0 A	10 A	1.63	
10	48	1 P	31	7 A	39.5	65	6.7	nw	104	12				
11	42	1 P	31	12 P	36.5	68	0.0	nw	190	22				T
12	45	2 P	30	7 A	37.5	45	9.1	w	236	18				
13	48	11 A	34	8 A	41.0	65	5.1	w	111	18				
14	39	1 P	28	7 A	33.5	57	9.5	w	237	25				
15	35	8 P	24	7 A	29.5	80	2.6	se	114	10	1:30 P	6 P	.07	1.00
16	38	2 P	32	8 A	35.0	94	0.0	nw	84	10	0 A	8:30 A	.25	
17	38	2 P	23	7 A	30.5	55	9.7	nw	150	13				
18	45	3 P	23	0 A	34.0	63	9.7	se	73	6				
19	58	2 P	27	3 A	42.5	79	6.7	se	135	13				
20	44	3 P	28	7 A	36.0	88	0.0	nw	39	4				
21	50	2 P	25	7 A	37.5	62	7.3	w	47	13	11:30 P	12 P	.06	
22	40	0 A	30	12 P	35.0	100	0.0	nw	273	22	0 A	9 P	1.07	3.50
23	32	3 P	28	6 A	30.0	87	0.2	nw	407	25	12:30 P	6 P	.05	0.50
24	43	3 P	27	6 A	35.0	61	8.0	nw	204	14				
25	50	3 P	28	7 A	39.0	67	9.5	nw	119	15				
26	57	3 P	27	8 A	42.0	58	9.4	se	60	11				
27	47	3 P	31	8 A	39.0	78	1.3	w	89	22				
28	36	1 P	22	12 P	29.0	53	6.0	nw	271	25				
29	34	2 P	16	8 A	25.0	66	9.2	n	63	11				
30	39	3 P	21	8 A	30.0	56	9.2	nw	115	11				

*Based on least time required to blow one mile.

STANLEY KISIEL, *Observer*

MONTHLY SUMMARY

November, 1943		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.48, 7th	30.59	30.87, 1932
Minimum	29.59, 9th	29.30	28.73, 1904
Mean semi-daily	30.070	30.05	
Range	0.89	1.29	1.84, 1904; .94, 1905
Air Temperature, in degrees F.			
Highest	66, 9th	66.0	75, 1924, 1938
Lowest	16, 29th	12.9	-4, 1938
Mean	38.7	38.9	44.1, 1931; 33.6, 1901
Range	50	53.0	
Highest mean daily	52, 9th		
Lowest mean daily	25, 29th		
Mean maximum	48.0		
Mean minimum	29.5		
Greatest daily range	33, 1st		
Least daily range	4, 23rd		
Precipitation, in inches			
Precipitation	4.64	3.41	8.64, 1927; .63, 1917
Snow	5.00	2.34	13.50, 1938
Maximum precipitation in 24 hrs.	2.60, 8th, 9th		
Number of days with .01 or more	10	9	22, 1921; 2, 1904
Wind, in miles			
Total movement	4134	4531	5,978, 1906; 2,589, 1889
Greatest daily movement	407, 23rd		
Least daily movement	39, 20th		
Mean hourly velocity	5.7	6.3	
Maximum velocity	28, 9th	30.3	44,1938
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	1		
Northeast, days	0		
East, days	0		
Southeast, days	7		
South, days	1		
Southwest, days	1		
West, days	8		
Northwest, days	12		
Weather			
Mean relative humidity, percent	70.5	70.6	
Mean cloudiness, percent	61	55.1	72, 1900, 1927; 34, 1917
Number of clear days	11	6	15, 1903; 1, 1900, 1911, 1927
Number of fair days	7	9	16, '12; 4, '89, '30, '32, '35
Number of cloudy days	12	15	24, 1927; 9, 1905, 1917
Number hours bright sunshine	148	121	182, 1903; 66, 1927
Percent of possible hours of bright sunshine	50.5	41.3	
Thunder and lightning	—		
First snow	15th	Nov. 6	Oct. 10, '25; Nov. 27, '31

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1942.

REMARKS

November had more rain and snow than usual, although the month as a whole was normal. As in October, there were many pleasant days during the month and the fall season has been an enjoyable one in most respects. The first snow of the season occurred on November 15, although a light trace was recorded on the 11th. The normal date for first snowfall is November 6, and last year only a trace was recorded in November. The snowstorm on the 22nd and 23rd, in which 4 inches was recorded at Amherst, was accompanied by high winds and although the storm was not considered too severe in this section, in many parts of New England it developed into one of the worst storms of the season in many years. The total snowfall for the month was 5.00 inches and the precipitation, 4.64 inches. The normal snowfall for November is 2.34 inches and the normal precipitation, 3.41 inches.

The mean temperature for the month was 38.7 degrees, while the normal for November is 38.9. Last year the mean was 38.8 degrees. The domestic heating load was 788 degree-days for November, and the normal for this month is 784 degree-days. The total load for the season through November 30 is 1373 degree-days compared to a normal of 1389 for this period.

There were 148 hours of bright sunshine for November, while the normal for this month is 121 hours.

Sleet fell on the 15th, and the roads were icy on the 21st, 22nd and 23rd.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorogical Series Bulletin No. 660 December 1943

Meteorological Observations

FOR

DECEMBER

1943

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	42	1 P	22	4 A	32.0	77	3.3	nw	55	11				
2	45	3 P	25	5 A	35.0	77	1.3	s	46	9				
3	40	2 P	31	12 P	35.5	89	0.0	s	41	5			T	
4	41	1 P	27	8 A	34.0	72	6.7	se	81	9			T	
5	44	12 M	23	12 P	33.5	48	9.2	w	283	28				
6	34	6 P	22	1 A	28.0	64	0.7	nw	82	8	6 P	11 P	.23	
7	38	12 M	24	12 P	31.0	82	4.1	nw	124	18				
8	39	12 P	19	8 A	29.0	78	5.5	se	57	8				
9	50	11 A	33	7 A	41.5	60	3.2	w	205	32	0 A	8 A	.03	
10	42	1 P	31	8 P	36.5	65	2.3	w	187	25				T
11	13	2 P	6	12 P	9.5	52	7.0	w	513	39				T
12	34	3 P	6	0 A	20.0	50	0.2	se	178	15				
13	32	0 A	8	12 P	20.0	56	7.8	w	318	28				
14	23	4 P	5	3 A	14.0	70	0.0	nw	44	8				T
15	18	4 P	4	8 A	11.0	66	9.1	nw	129	12				
16	25	3 P	–1	7 A	12.0	74	9.0	nw	60	9				
17	34	2 P	3	4 A	18.5	73	3.4	s	82	13				
18	38	12 M	20	7 A	29.0	65	3.0	w	116	13				
19	45	1 P	23	4 A	34.0	63	2.3	se	97	12				
20	36	10 A	20	12 P	28.0	57	1.5	w	276	48				
21	43	6 P	20	0 A	31.5	46	0.0	s	260	25				
22	34	0 A	16	12 P	25.0	56	4.0	w	195	18				
23	16	0 A	–1	12 P	7.5	54	9.0	w	185	18				
24	23	3 P	–6	8 A	8.5	65	9.0	nw	28	11				
25	37	2 P	5	7 A	21.0	55	5.7	se	93	13				
26	36	2 P	10	7 A	23.0	75	1.8	nw	18	7	7 P	12 P	.22	
27	50	3 P	30	0 A	40.0	89	3.7	nw	124	18	0 A	8 A	.10	
28	43	1 A	13	12 P	28.0	47	8.0	nw	331	28				
29	25	3 P	6	6 A	15.5	52	9.0	nw	142	12				
30	29	4 P	7	6 A	18.0	55	6.2	nw	52	8				
31	34	3 P	8	8 A	21.0	79	9.0	nw	9	2				

*Based on least time required to blow one mile.

STANLEY KISIEL, *Observer*

MONTHLY SUMMARY

December, 1943		Normal	Extremes
Barometer, in inches			
(Readings reduced to sea level)			
Maximum	30.55, 25th	30.66	30.96, 1889
Minimum	29.36, 10th	29.27	28.85, 1915
Mean semi-daily	30.051	30.06	
Range	1.19	1.38	1.78, 1895; 1.01, 1892
Air Temperature, in degrees F.			
Highest	50, 9th, 27th	54.3	65.5, 1908
Lowest	–6, 24th	–1.9	–22.5, 1917
Mean	24.9	27.5	36.9, 1891; 17.1, 1917
Range	56	56.2	
Highest mean daily	41.5, 9th		
Lowest mean daily	7.5, 23rd		
Mean maximum	35.0		
Mean minimum	14.8		
Greatest daily range	32, 25th		
Least daily range	7, 11th		
Precipitation, in inches			
Precipitation	.58	3.39	7.77, 1901; .87, 1896
Snow	T	8.50	26.50, '02; t, 1891
Maximum precipitation in 24 hrs.	.32, 26th, 27th		
Number of days with .01 or more	4	10	17, 1902; 4, 1892
Wind, in miles			
Total movement	4411	4710	6,694, 1925; 3,239, 1918
Greatest daily movement	513, 11th		
Least daily movement	9, 31st		
Mean hourly velocity	5.9	6.3	
Maximum velocity	48, 20th	31.4	48, 1938
Wind, direction			
Prevailing direction	W	WNW	
North, days	0		
Northeast, days	0		
East, days	0		
Southeast, days	5		
South, days	4		
Southwest, days	0		
West, days	9		
Northwest, days	13		
Weather			
Mean relative humidity, percent	64.9	69.4	
Mean cloudiness, percent	46	54.9	71, 1929; 39, 1919
Number of clear days	11	8	15, 1890; 2, 1922, 1933
Number of fair days	10	9	16, '09; 4, '89 '30, '31, '36, '38
Number of cloudy days	10	14	23, '33; 7, '09, '23
Number hours bright sunshine	145	128	172, 1896; 63, 1933
Percent of possible hours of bright sunshine	51.2	45.2	
Thunder and lightning	—		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1942.

ANNUAL SUMMARY

Annual, 1943		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	31.05, Mar. 9	30.81	31.05, 1920
Minimum	29.15, Oct. 4	28.95	28.41, 1938
Mean semi-daily	30.017	30.01	
Range	1.90	1.85	2.47, 1938; 1.38, 1933
Air Temperature, in degrees F.			
Highest	95, June 26 and 28	95.7	104, 1911
Lowest	–23, Feb. 16	–12.2	–26, 1904
Mean	47.3	47.4	49.8, 1921; 44, 1904
Range	118	107.8	
Highest mean daily	83.5, June 27		
Lowest mean daily	–13.5, Feb. 16		
Mean maximum	57.3	57.8	
Mean minimum	37.1	36.5	
Greatest daily range	44, Nov. 12		
Least daily range	3, Jan. 18		
Precipitation, in inches			
Precipitation	39.45	43.70	59.00, 1938; 30.68, 1908
Snow	38.50	47.78	89.00, 1893; 24.50, 1919
Maximum precipitation in 24 hrs.	2.60, Nov. 8 and 9		
Number of days with .01 or more	124	124	144, 1902; 96, 1924
Wind, in miles			
Total movement	50,963	52,223	63,571, 1908; 36,257, 1894
Greatest daily movement	513, Dec. 11		
Least daily movement	9, Dec. 31		
Mean hourly velocity	5.8	5.8	
Maximum velocity	48, Dec. 20	39.5	80, 1938
Wind, direction			
Prevailing direction	W	W	
North, days	9		
Northeast, days	2		
East, days	6		
Southeast, days	74		
South, days	33		
Southwest, days	24		
West, days	64		
Northwest, days	153		
Weather			
Mean relative humidity, percent	71.0	67.6	
Mean cloudiness, percent	58.0	51.7	60, '98, '01, '02; 41, '08, '24
Number of clear days	178	116	217, 1941; 59, 1927
Number of fair days	102	123	182, 1912; 64, 1936
Number of cloudy days	85	126	179, '01, '02; 71, 1910, 1941
Number hours bright sunshine	2799	2,353	3038, 1941; 1864, 1902
Percent of possible hours of bright sunshine	62.8	52.8	
Last snow	Apr. 14	April 15	Mar. 14, '10; May 11, '07
First snow	Nov. 15	Nov. 6	Oct. 10, '25; Dec. 13, '41
Last frost	Apr. 14	May 14	Apr. 23, '04; June 8, '32
First frost	Oct. 6	Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 661 January 1944

Meteorological Observations

FOR

JANUARY

1944

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	37	12 M	15	12 P	26.0	54	7.1	nw	135	22				
2	32	2 P	7	8 A	19.5	57	6.7	nw	47	6				
3	36	12 P	15	8 A	25.5	73	0.0	nw	32	10				
4	37	4 P	33	12 P	35.0	62	0.0	nw	274	20				
5	38	2 P	31	6 A	34.5	77	0.0	ne	160	13				
6	38	10 A	30	12 P	34.0	92	0.0	nw	194	28	4 A	8 P	.80	2.25
7	30	12 M	20	12 P	25.0	55	9.2	nw	353	25				
8	19	1 P	8	12 P	13.5	70	9.3	nw	232	25				
9	19	3 P	3	4 A	11.0	64	9.3	nw	122	22				
10	32	3 P	16	12 P	24.0	62	9.3	nw	152	22				
11	33	4 P	5	7 A	19.0	80	8.3	s	14	3				
12	29	2 P	17	0 A	23.0	61	6.9	w	193	28				
13	27	2 P	18	4 A	22.5	57	9.4	nw	241	28				
14	38	2 P	22	4 A	30.0	55	6.7	w	156	14				
15	37	2 P	22	7 A	29.5	76	7.2	se	55	13				
16	30	0 A	7	12 P	18.5	47	8.7	nw	224	22				
17	33	2 P	−2	8 A	15.5	74	9.5	sw	18	8				
18	35	3 P	9	8 A	22.0	86	9.5	sw	3	1				
19	33	2 P	13	2 A	23.0	92	2.8	nw	48	10				
20	42	2 P	28	8 A	35.0	80	9.6	s	27	6				
21	41	2 P	22	8 A	31.5	87	8.7	se	117	17				
22	46	2 P	32	0 A	39.0	61	7.8	w	154	25				
23	36	10 P	29	7 A	32.5	85	0.0	nw	53	11	9:30 A	2:30 P	.29	2.50
24	41	3 P	14	12 P	27.5	59	6.9	w	145	25				
25	35	11 P	8	7 A	21.5	72	5.3	nw	5	1	8 P	9:30 P	.02	
26	37	2 P	32	6 A	34.5	87	0.0	se	16	5	5 P	8 P	.03	
27	49	4 P	34	7 A	41.5	84	0.0	se	72	19				
28	42	0 A	30	8 A	36.0	68	9.9	n	61	6				
29	42	11 A	31	7 A	36.5	68	4.2	w	156	20	0 A	4 A	.10	1.00
30	33	0 A	11	12 P	22.0	59	9.9	w	389	32				
31	31	8 P	9	8 A	20.0	65	3.8	se	66	11				T

*Based on least time required to blow one mile.

STANLEY KISIEL, *Observer*

MONTHLY SUMMARY

January, 1944		Normal	Extremes
Barometer, in inches			
(Readings reduced to sea level)			
Maximum	30.59, 17th	30.70	31.00, 1927
Minimum	29.52, 31st	29.20	28.55, 1913
Mean semi-daily	30.098	30.07	
Range	1.07	1.50	2.18, 1913; 0.97, 1896
Air Temperature, in degrees F.			
Highest	49, 27th	51.1	66.0, 1932
Lowest	–2, 17th	–7.1	–26.0, 1904
Mean	26.7	24.2	34.2, 1913; 13.9, 1918
Range	51	58.2	
Highest mean daily	41.5, 27th		
Lowest mean daily	11.0, 9th		
Mean maximum	35.1		
Mean minimum	18.4		
Greatest daily range	35, 17th		
Least daily range	4, 4th		
Precipitation, in inches			
Precipitation	1.24	3.61	7.15, 1898; 1.07, 1896
Snow	5.75	13.32	33, 1898, 1923; 1.50, '08
Maximum precipitation in 24 hrs.	0.80, 6th		
Number of days with .01 or more	5	11	15, '93, '20; 4, 1901
Wind, in miles			
Total movement	3914	5055	7770, 1908; 2896, 1895
Greatest daily movement	389, 30th		
Least daily movement	3, 18th		
Mean hourly velocity	4.1	6.8	
Maximum velocity	32, 30th	32.7	47, 1938
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	1		
Northeast, days	1		
East, days	0		
Southeast, days	5		
South, days	2		
Southwest, days	2		
West, days	6		
Northwest, days	14		
Weather			
Mean relative humidity, percent	70	70.1	
Mean cloudiness, percent	54	55	78, 1932; 37, 1908
Number of clear days	20	9	18, 1941; 2, 1914
Number of fair days	3	9	18, 1890, 1926; 3, 1916
Number of cloudy days	8	13	22, 1923, 1931; 4, 1920, 1939
Number hours bright sunshine	187	137	214, 1920; 74, 1932
Percent of possible hours of bright sunshine	63.6	46.7	
Thunder and lightning	—		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1943.

REMARKS

The weather during January was somewhat warmer than usual with very little snow. The mean temperature for the month was 26.7 degrees, while the normal for January is 24.2 degrees. The temperature dropped below zero on one day, the 17th, when the thermometer reached 2 below zero. The heating load during January was 1186 degree-days whereas the normal for this month is 1265 degree-days. The total heating load for the season to the end of January is 3803 degree-days, the normal for this period being 3817 degree-days.

The snowfall during the month was 5.75 inches, while usually we get 13.32 inches during January. The total precipitation for the month was only 1.24 inches, the normal being 3.61 inches. The total snowfall for the winter to the end of January is 10.75 inches, the normal for the period being 24.16 inches. There were 187 hours of bright sunshine compared to a normal of 137 hours. Total wind movement was only 3914 miles, while the normal wind movement for January is 5055 miles. The highest wind velocity was 30 miles per hour on the 30th. The mean relative humidity was 70 percent.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 662 February 1944

Meteorological Observations

FOR

FEBRUARY

1944

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	32	4 A	10	12 P	21.0	62	7.2	w	331	32				T
2	32	2 P	7	8 A	19.5	59	10.0	w	146	20				
3	38	3 P	24	7 A	31.0	60	7.4	w	193	20				
4	34	3 P	15	8 A	24.5	44	10.1	nw	137	15				
5	40	3 P	10	8 A	25.0	75	5.2	se	142	22			T	
6	43	8 A	18	12 P	30.5	50	7.8	w	325	32				
7	32	4 P	14	3 A	23.0	79	2.8	se	73	15				T
8	27	0 A	7	12 P	17.0	52	10.2	nw	197	18				
9	26	3 P	5	7 A	15.5	60	5.5	nw	81	7				
10	28	2 P	16	12 P	22.0	42	9.0	nw	219	22				
11	19	6 P	10	8 A	14.5	94	0.8	nw	185	18	6 A	12 P	.25	3.00
12	23	2 P	11	12 P	17.0	89	3.1	nw	218	20	0 A	2 P	.32	3.50
13	27	2 P	3	7 A	15.0	64	10.5	w	192	18				
14	43	12 P	–5	7 A	19.0	77	5.4	se	86	18	4:30 P	12 P	.32	0.25
15	45	2 A	26	12 P	35.5	45	4.8	w	401	48	0 A	5 A	.33	T
16	29	2 P	17	7 A	23.0	65	5.9	se	179	25				T
17	38	1 P	16	8 A	27.0	84	4.1	sw	68	10	7:30 P	12 P	.17	0.25
18	40	12 M	11	12 P	25.5	67	5.8	nw	259	32	0 A	3 A	.15	
19	25	3 P	4	7 A	14.5	48	10.7	w	198	17				
20	39	3 P	6	6 A	22.5	69	6.3	se	104	17				
21	43	3 P	21	6 A	32.0	56	10.8	nw	135	13				
22	38	1 P	30	0 A	34.0	83	0.0	se	126	12	1:30 P	12 P	.51	0.50
23	44	9 A	33	3 A	38.5	78	0.0	nw	173	20	0 A	8 A	.24	
24	51	2 P	29	7 A	40.0	67	9.0	w	156	25				
25	40	3 P	24	7 A	32.0	53	11.0	nw	200	18				
26	36	1 P	20	7 A	28.0	57	6.3	nw	58	7	9:30 P	12 P	.01	
27	33	1 A	31	8 A	32.0	87	0.0	se	25	5	0 A	4 A	.04	
28	45	1 P	29	6 A	37.0	79	0.0	nw	72	11				
29	39	1 P	32	7 A	35.5	75	0.3	nw	98	20				

*Based on least time required to blow one mile.

Stanley Kisiel, *Observer*

MONTHLY SUMMARY

February, 1944		Normal	Extremes
Barometer, in inches			
(Readings reduced to sea level)			
Maximum	30.52, 19th	30.63	31.05, 1920
Minimum	29.24, 15th	29.24	28.56, 1895
Mean semi-daily	30.052	30.04	
Range	1.28	1.38	1.89, '00, '08; .88, '13 '31
Air Temperature, in degrees F.			
Highest	51, 24th	50.5	65.0, 1930
Lowest	–5, 14th	–7.4	–23, 1943
Mean	25.9	23.7	
Range	56	58	
Highest mean daily	40, 24th		
Lowest mean daily	14.5, 11th, 19th		
Mean maximum	35.5	32.8	
Mean minimum	16.3	14.5	
Greatest daily range	48, 14th		
Least daily range	2, 27th		
Precipitation, in inches			
Precipitation	2.34	3.19	8.12, 1900; 0.62, 1901
Snow	7.50	13.99	48.75, 1893; 0.50, 1937
Maximum precipitation in 24 hrs.	.75, 22nd, 23rd		
Number of days with .01 or more	10	10	15, '93, '20; 4, 1901
Wind, in miles			
Total movement	4777	4776	6445, 1896; 3438, 1892
Greatest daily movement	401, 15th		
Least daily movement	25, 27th		
Mean velocity	6.9	7.1	
Maximum velocity	48, 15th	31.7	48, 1934, 1937
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	0		
Northeast, days	0		
East, days	0		
Southeast, days	7		
South, days	0		
Southwest, days	1		
West, days	8		
Northwest, days	13		
Weather			
Mean relative humidity, percent	66.2	66.6	
Mean cloudiness, percent	56	50.9	66, '90, '27; 31, 1905
Number of clear days	12	10	19, 1941; 2, 1927
Number of fair days	9	8	16, 1920; 2, 1936
Number of cloudy days	8	10	16, 1894; 2, 1920
Number hours bright sunshine	170	158	221, 1924; 110, '27, '38
Percent of possible hours of bright sunshine	57.4	53.4	
Thunder and lightning	23rd		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1943.

REMARKS

The weather during February was unusually pleasant. The temperature was not as low as usual, there was less rain and snow than normal, and a greater amount of sunshine than usual was recorded. Roads were unusually free from ice.

The mean temperature for the month was 25.9 degrees, the normal being 23.7 degrees. The lowest temperature was –5 degrees, the normal minimum for February being –7.4 degrees. It is interesting to recall that the temperature fell to –23 degrees on February 16 in 1943. The heating load for the month was 1134 degree-days, the normal being 1165 degree-days. The total heating load for the season to the end of February is 4937 degree-days, while the normal for that period is 4982 degree-days.

Only 7.50 inches of snow fell during the month while the normal snowfall for February is 13.99 inches. The total precipitation was 2.34 inches compared to a normal of 3.19 inches. The total snowfall for the winter is now 18.25 inches, while usually we get 38.15 inches to the end of February. There were 170 hours of bright sunshine during February compared to a normal of 158 hours. The mean relative humidity was 66.2 percent, the normal is 66.6 percent. The maximum wind velocity was 48 miles per hour on the 15th.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 663 March 1944

Meteorological Observations

FOR

MARCH

1944

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	34	2 P	16	12 P	25.0	52	11.2	nw	484	32				
2	27	1 P	10	6 A	18.5	37	11.2	nw	338	25				
3	35	2 P	15	3 A	25.0	69	6.0	se	53	7				T
4	27	4 P	10	12 P	18.5	40	8.0	nw	173	17				
5	35	4 P	5	7 A	20.0	36	11.4	nw	241	28				
6	47	3 P	8	7 A	27.5	36	9.5	s	173	13				
7	40	3 P	30	2 A	35.0	93	0.0	se	106	13	0 A	1 P	.83	1.50
8	43	2 P	27	12 P	35.0	55	10.3	sw	206	20				
9	31	12 M	18	12 P	24.5	48	11.6	w	292	25				
10	30	4 P	14	7 A	22.0	55	10.0	w	181	17				
11	38	1 P	11	7 A	24.5	62	11.7	se	115	14				
12	57	1 P	27	6 A	42.0	51	9.5	se	154	17	10 P	12 P	.06	
13	51	4 P	33	12 P	42.0	86	0.0	nw	108	32	0 A	10:30 A	.42	
14	46	3 P	26	7 A	36.0	43	11.8	nw	346	32				
15	38	12 M	31	7 A	34.5	66	0.3	se	93	8	12 M	12 P	.25	1.00
16	37	1 P	33	0 A	35.0	99	0.0	se	43	5	0 A	12 P	.46	
17	42	2 P	35	0 A	38.5	89	0.0	se	79	15	0 A	2:30 P	.35	
18	44	1 P	19	12 P	31.5	50	5.6	w	279	28				
19	25	9 P	9	6 A	17.0	43	9.0	nw	238	28	9:30 P	12 P	.04	.50
20	28	12 M	18	5 A	23.0	88	5.0	nw	195	18	0 A	8 P	.30	5.00
21	46	1 P	20	5 A	33.0	65	9.8	nw	121	12				
22	44	2 P	16	6 A	30.0	47	12.2	nw	89	8				
23	40	9 P	29	6 A	34.5	90	0.0	se	64	5	9 A	10 P	.78	T
24	50	4 P	34	2 A	42.0	50	9.3	w	255	32				
25	63	3 P	28	6 A	45.5	61	12.4	se	126	17				
26	51	3 P	35	12 P	43.0	47	12.4	w	270	25				
27	49	12 M	34	0 A	41.5	64	1.4	se	60	15	12:30P	5:30 P	.36	
28	46	2 P	32	12 P	39.0	45	11.7	nw	245	40				
29	48	12 M	27	5 A	37.5	51	4.7	e	119	20	8 P	12 P	.11	.25
30	37	4 P	32	1 A	34.5	100	0.0	nw	146	10	0 A	10 P	.39	
31	45	1 P	29	12 P	37.0	69	10.0	w	146	20	7 P	8 P	.01	T

*Based on least time required to blow one mile.

STANLEY KISIEL, *Observer*

MONTHLY SUMMARY

March, 1944		Normal	Extremes
Barometer, in inches			
(Readings reduced to sea level)			
Maximum	30.73, 22nd	30.57	31.05, 1943
Minimum	29.43, 23rd	29.24	28.47, 1914
Mean semi-daily	30.099	30.00	
Range	1.30	1.34	2.10, 1914; 0.85, 1915
Air Temperature, in degrees F.			
Highest	63, 25th	63.8	79.5, 1907, 1921
Lowest	5, 5th	6.1	–7.5, 1906
Mean	32.0	34.4	
Range	58	57.6	
Highest mean daily	45.5, 25th		
Lowest mean daily	17.0, 19th		
Mean maximum	41.1	43.2	
Mean minimum	22.9	25.4	
Greatest daily range	39, 6th		
Least daily range	4, 16th		
Precipitation, in inches			
Precipitation	4.36	3.70	7.89, 1942; 0.12, 1915
Snow	8.25	7.47	27, 1899; 0, 1921
Maximum precipitation in 24 hrs.	.83, 7th		
Number of days with .01 or more	13	11	17, 1890, 1913, 1936; 3, 1915
Wind, in miles			
Total movement	5538	5944	8182, 1896; 3006, 1905
Greatest daily movement	484, 1st		
Least daily movement	43, 16th		
Mean velocity	7.4	7.7	
Maximum velocity	40, 28th	31.2	48, 1932, 1939, 1941, 1942
Wind, direction			
Prevailing direction	WSW	WNW	
North, days	0		
Northeast, days	0		
East, days	1		
Southeast, days	10		
South, days	1		
Southwest, days	1		
West, days	6		
Northwest, days	12		
Weather			
Mean relative humidity, percent	60.9	64.2	
Mean cloudiness, percent	57	51.8	68, 1901; 27, 1915
Number of clear days	19	11	22, 1924; 3, 1901
Number of fair days	4	10	17, 1900; 1, 1943
Number of cloudy days	8	10	21, 1901; 1, 1915
Number hours bright sunshine	226	199	292, 1924; 93, 1901
Percent of possible hours of bright sunshine	60.9	53.6	
Thunder and lightning	27th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1943.

REMARKS

The weather during March was nearly normal in most respects. It was slightly colder than usual and there was more rain and more sunshine than normal. The mean temperature for the month was 32 degrees, the normal being 34.4 degrees. The lowest temperature was 5 degrees on the 5th. The normal minimum for March is 6.1 degrees. The domestic heating load for the month was 1022 degree-days compared to a normal of 950 degree-days. The heating load for the season to the end of March is 5959 degree-days, the normal for this period being 5932 degree-days.

The total precipitation for the month was 4.36 inches, with 8.25 inches of snow. The normal precipitation for March is 3.70 inches and the normal snowfall 7.47 inches. The total precipitation since January 1 is 7.94 inches, while the normal for the three months is 10.50 inches. We have had a total of 26.50 inches of snow during the winter, the normal snowfall to the end of March being 45.62 inches.

There were 226 hours of bright sunshine, the normal being 199 hours. The highest wind velocity was 40 miles per hour on the 28th.

Dr. J. K. Shaw, research pomologist, makes the following statement: "There has been no severe cold during the past winter but snowfall was deficient and the ground bare most of the time. We should look for no material winter injury to tree fruits and few peach fruit buds have been killed. Therefore, a good peach crop is to be expected as spring frosts rarely kill the flowers or young fruits in Massachusetts. The absence of a snow cover is not good for strawberry plants but well-mulched beds should not suffer. The present state of vegetation is somewhat retarded, and we do not expect an early spring. Resumption of growth depends on future rather than past temperatures and a few days of warm weather will bring a normal stage of progress."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series | Bulletin No. 664 | April 1944

Meteorological Observations

FOR

APRIL

1944

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	51	3 P	26	6 A	38.5	52	10.4	sw	181	18				
2	52	12 M	32	12 P	42.0	50	6.1	w	194	20				
3	43	3 P	28	6 A	35.5	42	12.3	nw	231	17				
4	40	12 M	23	6 A	31.5	56	8.3	w	67	8				
5	41	5 P	26	6 A	33.5	63	2.9	nw	80	9				
6	48	6 P	25	4 A	36.5	49	12.5	w	159	20				
7	59	3 P	34	6 A	46.5	42	13.0	w	256	28				
8	42	6 P	33	5 A	37.5	89	0.0	nw	32	6	8 A	1 P	.29	
9	64	4 P	32	6 A	48.0	74	9.3	se	56	10				
10	54	2 P	36	12 P	45.0	87	1.8	nw	130	28	0 A	3:30 A	.06	
11	53	12 M	30	4 A	41.5	65	7.6	e	97	13	4 P	9 P	.23	
12	40	4 P	35	8 A	37.5	100	0.0	nw	94	8	4 A	2 P	.34	
13	50	4 P	34	12 P	42.0	42	8.0	w	364	39				
14	49	4 P	28	5 A	38.5	37	13.3	w	357	32				
15	43	2 P	30	2 A	36.5	59	0.8	nw	67	13	2 P	12 P	.74	
16	43	4 P	34	0 A	38.5	96	0.0	nw	89	8	0 A	9 P	.38	
17	50	4 P	38	8 A	44.0	70	4.7	nw	125	20				
18	59	3 P	34	5 A	46.5	40	13.5	w	192	20				
19	66	4 P	29	5 A	47.5	41	13.5	w	85	13				
20	71	4 P	30	5 A	50.5	50	13.6	w	61	13				
21	47	0 A	37	12 P	42.0	99	0.0	n	86	8	5:30 A	9 P	.22	
22	60	5 P	37	3 A	48.5	59	13.6	nw	139	13				
23	58	1 P	32	5 A	45.0	53	9.0	s	115	11	8 P	12 P	.11	
24	44	1 P	35	2 A	39.5	81	0.0	nw	95	17	0 A	10:30 P	1.23	
25	56	5 P	39	4 A	47.5	88	0.1	w	124	17	9 A	10 A	.01	
26	55	4 P	42	12 P	48.5	83	1.9	w	100	20	0 A	2 A	.05	
27	55	5 P	35	5 A	45.0	67	3.5	nw	125	18				
28	57	3 P	36	5 A	46.5	45	13.8	nw	324	28				
29	70	4 P	31	5 A	50.5	38	13.8	nw	173	25				
30	74	1 P	38	5 A	56.0	34	12.7	w	108	18				
31														

*Based on least time required to blow one mile.

Stanley Kisiel, *Observer*

MONTHLY SUMMARY

April, 1944		Normal	Extremes
Barometer, in inches			
(Readings reduced to sea level)			
Maximum	30.41, 22nd, 23rd	30.48	30.71, 1911
Minimum	29.37, 12th	29.38	28.98, 1943
Mean semi-daily	29.996	29.99	
Range	104	1.11	1.52, 1930; .72, 1919
Air Temperature, in degrees F.			
Highest	74, 30th	79.4	90, 1941
Lowest	23, 4th	22.0	8.5, 1923
Mean	42.9	45.7	52, 1921; 41, 1943
Range	51	57.4	
Highest mean daily	56, 30th		
Lowest mean daily	31.5, 4th		
Mean maximum	53.1	56.8	
Mean minimum	32.6	34.8	
Greatest daily range	41, 20th		
Least daily range	5, 12th		
Precipitation, in inches			
Precipitation	3.66	3.35	6.89, 1929; .55, 1941
Snow	0	2.17	11, 1891; 0, 1910, 1934
Maximum precipitation in 24 hrs.	1.23, 24th		
Number of days with .01 or more	11	11	18, 1909; 3, 1892
Wind, in miles			
Total movement	4306	5404	8208, 1908; 3853, 1917
Greatest daily movement	364, 13th		
Least daily movement	32, 8th		
Mean hourly velocity	6.0	7.5	
Maximum velocity	39, 13th	31.4	40, 1935, 1938, 1940
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	1		
Northeast, days	0		
East, days	1		
Southeast, days	1		
South, days	1		
Southwest, days	1		
West, days	12		
Northwest, days	13		
Weather			
Mean relative humidity, percent	61.7	61.6	75, 1901; 34, 1925, 1927
Mean cloudiness, percent	58	51.8	23, 1941; 3, 1898, 1902
Number of clear days	13	11	18, 1915; 2, 1894, 1901
Number of fair days	6	9	22, 1901; 1, 1941
Number of cloudy days	11	10	329, 1941; 103, 1901
Number hours bright sunshine	220	220	
Percent of possible hours of bright sunshine	54.7	54.7	
Thunder and lightning	16th, 24th		
Last snow	March 29	Apr. 15	Mar. 14, 1910; May 11, 1907

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1943.

REMARKS

The weather during April was cold with a mean temperature of 42.9 degrees. The normal mean temperature for April is 45.7 degrees. The lowest temperature was 23 degrees on the 4th and the highest, 74 degrees on the 30th. The domestic heating load for April was 664 degree-days compared to the normal of 579 degree-days. The total heating load for the season is now 6623 degree-days while the normal heating load to the end of April is 6511 degree-days.

The total precipitation during April was 3.66 inches. There was no snowfall. Normal precipitation for April is 3.35 inches; normal snowfall, 2.17 inches. The total snowfall for the winter was 26.50 inches compared to the normal of 47.79 inches. Last winter's snowfall was 40.50 inches. There were 220 hours of sunshine. The normal is also 220 hours. The total wind movement was 4306 miles, while the normal is 5404 miles.

Dr. J. K. Shaw makes the following comments: "Vegetation made slow progress during April because of much cold weather. The month closes with early leafing trees showing only tiny leaves just breaking from the bud. Apple buds have not shown any color. The season is a week or more later than average. The rainfall will help to restore the depleted water reserves of the soil, and the later the buds break the less danger from spring frosts. Severe winter injury has become apparent in blueberry plants, and raspberry canes have been injured. No winter injury to tree fruits is yet apparent, and we can feel quite confident that none will appear. Apple and peach fruit buds are evident and there is promise of a heavy bloom. Some evergreen trees show winter injury. The ground froze deeply and was hardly completely thawed out at the end of the month. This condition together with winds may have been factors in causing winter injury. Except for late planting, the crop season of 1944 starts off fairly well."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series | Bulletin No. 665 | May 1944

Meteorological Observations

FOR

MAY

1944

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	76	2 P	50	12 P	63.0	46	14.0	n	100	13				
2	62	2 P	44	5 A	53.0	71	5.1	s	112	13				
3	81	4 P	43	3 A	62.0	68	9.3	se	157	13				
4	90	3 P	49	5 A	69.5	59	13.3	se	126	14				
5	91	3 P	52	5 A	71.5	53	14.2	s	131	14				
6	83	3 P	57	5 A	70.0	64	14.2	se	169	18				
7	79	1 P	56	12 P	67.5	75	8.5	se	280	28	5 P	10 P	.14	
8	65	4 P	44	12 P	54.5	59	14.3	nw	211	18				
9	72	4 P	39	5 A	55.5	56	5.6	se	84	11				
10	78	3 P	49	5 A	63.5	53	14.4	se	112	9				
11	80	3 P	51	5 A	65.5	61	14.4	sw	65	6				
12	83	4 P	54	4 A	68.5	52	14.5	sw	72	10				
13	85	2 P	53	5 A	69.0	70	13.0	s	121	20	7 P	8 P	.46	
14	73	4 P	57	12 P	65.0	56	14.5	w	216	20				
15	79	4 P	49	5 A	64.0	64	12.0	s	94	14	4:30 P	5 P	T	
16	75	1 P	49	5 A	62.0	76	9.0	sw	60	8				
17	82	4 P	46	5 A	64.0	64	14.6	sw	62	9				
18	65	0 A	37	12 P	51.0	41	14.7	n	233	22				
19	67	4 P	30	5 A	48.5	38	14.7	w	136	17				
20	73	5 P	35	5 A	54.0	56	14.7	w	126	20				
21	82	4 P	38	5 A	60.0	47	13.7	sw	88	17				
22	65	1 P	58	0 A	61.5	91	0.8	ne	120	18	8:30 A	6:30 P	.55	
23	61	1 P	54	0 A	57.5	83	3.7	e	73	11	8:30 P	10 P	T	
24	61	12 M	53	6 A	57.0	91	2.0	nw	36	6	0 A	8 P	.20	
25	70	2 P	54	5 A	62.0	72	5.0	se	72	10				
26	72	4 P	58	5 A	65.0	83	4.7	s	113	10				
27	88	3 P	61	5 A	74.5	78	11.7	s	124	15				
28	84	5 P	62	5 A	73.0	45	15.0	s	112	14				
29	88	5 P	52	5 A	70.0	48	15.0	nw	50	8				
30	87	3 P	52	5 A	69.5	55	15.0	se	112	11				
31	93	3 P	57	5 A	75.0	54	14.4	nw	130	13				

*Based on least time required to blow one mile.

STANLEY KISIEL, *Observer*

MONTHLY SUMMARY

May 1944		Normal	Extremes
Barometer, in inches			
(Readings reduced to sea level)			
Maximum	30.46, 11th	30.39	30.62, 1936
Minimum	29.65, 22nd	29.51	29.10, 1938
Mean semi-daily	30.089	29.96	
Range	0.81	0.88	
Air Temperature, in degrees F.			
Highest	93, 31st	86.1	94.5, 1896, 1911
Lowest	30, 19th	31.2	24.0, 1900
Mean	63.4	57.1	
Range	63	54.9	
Highest mean daily	75, 31st		
Lowest mean daily	48.5, 19th		
Mean maximum	77.1		
Mean minimum	49.8		
Greatest daily range	44, 21st		
Least daily range	7, 22nd, 23rd		
Precipitation, in inches			
Precipitation	1.35	3.60	7.44, 1931; .48, 1903
Snow	—		
Maximum precipitation in 24 hrs.	.55, 22nd		
Number of days with .01 or more	4	12	20, 1901; 5, 1903
Wind, in miles			
Total movement	3697	4504	5946, 1907; 2180, 1894
Greatest daily movement	280, 7th		
Least daily movement	36, 24th		
Mean hourly velocity	5.0	6.1	
Maximum velocity	28, 7th	28.8	45, 1935
Wind, direction			
Prevailing direction	SSW	W	
North, days	2		
Northeast, days	1		
East, days	1		
Southeast, days	8		
South, days	7		
Southwest, days	5		
West, days	3		
Northwest, days	4		
Weather			
Mean relative humidity, percent	62.2	60.7	
Mean cloudiness, percent	53.1	52.1	70, 1901, 1902; 30, 1923
Number of clear days	21	11	20, 1923, 1941; 0, 1927
Number of fair days	7	11	17, 1907, 1926; 5, 1923
Number of cloudy days	3	9	20, 1927; 2, 1941
Number hours bright sunshine	350	252	338, 1941; 137, 1927
Percent of possible hours of bright sunshine	77.3	55.6	
Thunder and lightning	13th, 15th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1943.

REMARKS

May of this year was the warmest, sunniest and very nearly the dryest May on record here at the station; and yet on the morning of the 19th a killing frost occurred which caused serious damage to crops in this section.

The mean temperature for the month was 63.4 degrees, compared to a normal of 57.1 degrees. This is the highest mean temperature for May recorded at this station in 56 years. The nearest approach to this record is a mean temperature of 62.5 degrees recorded in 1911. The highest temperature was 93 degrees on the 31st and the lowest, 30 degrees on the 19th. The first and last weeks of the month were exceptionally warm. The domestic heating load for the month was 112 degree-days, the normal for May being 267 degree-days. The total heating load for the season to the end of May is 6735 degree-days while the normal for this period is 6778 degree-days.

The total precipitation for the month was 1.35 inches, which is 2.25 inches less than normal for May. Rain fell on only four days. The total precipitation since the first of the year is now 12.95 inches, while the normal for this period is 17.45 inches. The outstanding feature of May weather last year was the large number of rainy days, 15 in all, with a total rainfall of 5.62 inches.

There were 350 hours of bright sunshine compared with a normal of 199 hours. There were no high winds during the month.

Dr. J. K. Shaw, research pomologist, makes the following interesting comments regarding the progress of vegetation: "At the end of April the development of vegetation was a week or more behind normal. During the first half of May there were many days when the temperature was unusually high and the date of bloom of fruit plants was two or three days earlier than normal. Warm weather continued through the blooming period, bees were active and prospects were for a heavy set of fruit. Both apples and peaches blossomed heavily. On May 17 the maximum temperature was 85 degrees. On the afternoon of the 18th the temperature rose to 58 degrees and then fell to a minimum of 30 degrees on the morning of the 19th. This caused severe damage to tree fruits and injured tender vegetation. Orchards on high sites with good air drainage apparently escaped injury but those on low sites or in "frost pockets" suffered complete loss of the setting fruits. Some soft, tender new shoot tips were killed and there was injury to all tender vegetation that had been encouraged by the warm days preceding May 18. This is the second time in 37 years that there has been extensive spring frost injury in our orchards. Rainfall during the month was deficient. While the month closes with no serious drouth injury, shallow-rooted plants will soon suffer if rains do not come early in June."

MASS. STATE COLLEGE
AMHERST, MASS.

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 666 June 1944

Meteorological Observations

FOR

JUNE

1944

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	80	3 P	62	4 A	71.0	81	8.7	nw	77	17				
2	89	4 P	59	5 A	74.0	60	15.1	nw	45	5				
3	76	8 P	52	12 P	64.0	59	11.0	nw	231	22				
4	70	5 P	47	5 A	58.5	47	15.1	se	93	8				
5	74	3 P	45	5 A	59.5	56	15.2	se	199	15				
6	83	3 P	55	5 A	69.0	67	11.6	se	240	15				
7	73	2 P	48	12 P	60.5	63	10.9	w	200	20	1 A	3:30A	.03	
8	74	4 P	40	5 A	57.0	53	15.2	w	93	11				
9	79	3 P	46	5 A	62.5	53	13.1	sw	79	13				
10	66	0 A	54	12 P	60.0	94	0.0	se	87	10	8 A	9 P	.81	
11	78	4 P	54	2 A	66.0	69	10.6	nw	211	15				
12	80	3 P	50	4 A	65.0	60	13.4	w	117	17				
13	77	3 P	55	4 A	66.0	48	14.6	n	155	18				
14	71	11 A	47	4 A	59.0	60	8.0	se	103	9				
15	68	5 P	52	5 A	60.0	93	0.0	se	130	7	2:30A	6:30A	.22	
16	90	2 P	62	0 A	76.0	74	6.0	se	103	39				
17	86	3 P	60	4 A	73.0	65	13.9	w	188	13				
18	81	11 A	58	5 A	69.5	63	10.0	nw	128	18				
19	62	4 P	56	7 A	59.0	91	0.0	se	99	9	5 A	12 P	.44	
20	64	8 A	53	12 P	58.5	97	0.0	nw	94	18	1:30A	8 P	1.12	
21	64	4 P	53	4 A	58.5	96	0.4	nw	116	9	8 A	9:30P	.19	
22	81	6 P	55	3 A	68.0	74	11.1	s	71	14	4 A	6 A	.05	
23	85	3 P	57	5 A	71.0	74	8.9	se	74	11				
24	70	0 A	60	12 P	65.0	94	0.0	ne	173	18	3:30A	10:30P	1.84	
25	68	12 M	60	0 A	64.0	87	0.3	nw	220	20				
26	80	6 P	59	4 A	69.5	70	7.7	nw	90	17				
27	90	3 P	58	4 A	74.0	74	15.3	se	59	7				
28	92	3 P	66	5 A	79.0	72	15.3	se	112	8				
29	95	3 P	67	5 A	81.0	71	12.5	s	111	13				
30	82	3 P	62	12 P	72.0	59	15.1	nw	188	20				
31														

*Based on least time required to blow one mile.

Fernand E. Bartlett, *Observer*

MONTHLY SUMMARY

JUNE, 1944		Normal	Extremes
Barometer, in inches			
(Readings reduced to sea level)			
Maximum	30.28, 5th, 9th	30.30	30.54, 1889
Minimum	29.41, 24th	29.55	29.24, 1902
Mean semi-daily	29.896	29.95	
Range	0.87	0.75	
Air Temperature, in degrees F.			
Highest	95, 29th	91.2	101, 1919
Lowest	40, 8th	40.0	34, 1891
Mean	66.3	65.7	
Range	55	51.3	
Highest mean daily	81, 29th		
Lowest mean daily	57, 8th		
Mean maximum	77.6		
Mean minimum	55.1		
Greatest daily range	34, 8th		
Least daily range	6, 19th		
Precipitation, in inches			
Precipitation	4.70	3.75	9.68, 1922; 0.76, 1908
Snow	—		
Maximum precipitation in 24 hrs.	1.84, 24th		
Number of days with .01 or more	8	11	17, 1922; 4, 1908
Wind, in miles			
Total movement	3886	3585	4571, 1908; 1409, 1906
Greatest daily movement	240, 6th		
Least daily movement	45, 2nd		
Mean hourly velocity	5.4	5.0	
Maximum velocity	39, 16th	24.6	48, 1939
Wind, direction			
Prevailing direction	WSW	WSW	
North, days	1		
Northeast, days	1		
East, days	0		
Southeast, days	11		
South, days	2		
Southwest, days	1		
West, days	4		
Northwest, days	10		
Weather			
Mean relative humidity, percent	70.8	66.9	
Mean cloudiness, percent	61.3	51.1	71, 1903; 28, 1908
Number of clear days	16	10	22, 1908, 1941, 1943; 1, 1927
Number of fair days	6	12	23, 1912; 3, 1941
Number of cloudy days	8	8	22, 1903; 1, 1923
Number hours bright sunshine	279	257	362, 1908; 102, 1903
Percent of possible hours of bright sunshine	61.1	54.0	
Thunder and lightning	19th, 20th, 21st, 22nd, 24th		
Last frost	May 19		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1943.

REMARKS

The weather during June was near normal in all respects. The mean temperature for the month was 66.3 degrees which is only 0.6 of a degree higher than normal. The highest temperature was 95 degrees on the 29th and the lowest 40 degrees on the 8th. The domestic heating load during the month was 64 degree-days which is 4 less than normal. The domestic heating load for the 1943-44 season was 6799 degree-days while the normal is 6846 degree-days.

The total precipitation for the month was 4.70 inches, the normal for June being 3.75 inches. The total precipitation since January 1 is now 17.65 inches, while the normal for this period is 21.20 inches. There were 279 hours of bright sunshine compared to a normal of 257 hours. The mean relative humidity was 70.8 percent, the normal being 66.9 percent. The highest wind velocity was 39 miles per hour on the 16th.

Dr. J. K. Shaw gives the following report: "The dry period of May continued into June. Light rains on June 7th, 10th and 18th kept matters from growing worse, and during the period from June 19 to June 24, abundant rains removed any danger of drought injury for some time to come. The dry weather delayed germination of newly-planted seeds and plant setting, and injured shallow-rooted plants. The early hay crop was very short. The heavy rains came in season to increase growth of later fields and encourage a better second crop. Tree fruits did not suffer from lack of water.

"Further reports of the frost of May 19 indicate serious losses of the apple crop. Injury was confined to low frosty locations, while orchards on higher sites escaped any injury. Other tree fruits seem to have suffered but little. The crop of cultivated blueberries was very seriously injured and strawberries were extremely scarce."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 667 July, 1944

Meteorological Observations

FOR

JULY

1944

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	83	4 P	53	5 A	68.0	49	15.3	nw	117	14				
2	83	5 P	57	5 A	70.0	47	15.3	nw	122	10				
3	84	2 P	51	5 A	67.5	60	8.8	sw	56	10				
4	83	1 P	57	4 A	70.0	67	7.7	sw	71	11	2 A	10:30P	.56	
5	89	3 P	56	5 A	72.5	69	12.5	sw	67	14				
6	88	3 P	64	4 A	76.0	62	13.2	nw	109	13				
7	91	2 P	60	4 A	75.5	66	15.2	s	59	8				
8	93	3 P	64	5 A	78.5	63	15.2	se	93	7				
9	93	2 P	70	5 A	81.5	64	15.1	s	110	10				
10	92	1 P	66	5 A	79.0	67	10.7	se	91	11			T	
11	92	1 P	66	4 A	79.0	74	7.9	se	88	15	2:30 P	3 P	.06	
12	88	12 M	71	3 A	79.5	72	7.8	se	188	18	8 P	11 P	.22	
13	86	3 P	62	12 P	74.0	63	15.0	nw	141	14	12:30A	4 A	.08	
14	86	5 P	59	5 A	72.5	61	14.0	nw	40	4				
15	87	4 P	61	5 A	74.0	67	8.4	sw	58	7				
16	87	1 P	60	12 P	73.5	77	5.6	se	139	32	3 P	4 P	.45	
17	79	4 P	55	12 P	67.0	58	15.0	nw	119	11			T	
18	81	4 P	52	5 A	66.5	61	15.0	nw	53	6				
19	82	1 P	54	4 A	68.0	63	11.6	se	112	17				
20	79	3 P	61	3 A	70.0	84	3.6	se	90	10	5:30 A	12 P	.27	
21	77	1 P	55	12 P	66.0	68	7.2	w	114	18	0 A	3:30 A	.15	
22	82	6 P	50	3 A	66.0	57	14.9	w	113	15				
23	86	4 P	57	5 A	71.5	58	14.8	nw	55	10				
24	90	3 P	61	5 A	75.5	65	14.8	s	79	12				
25	83	5 P	65	12 P	74.0	69	10.8	nw	121	14	2 A	2:30 A	.04	
26	90	3 P	57	5 A	73.5	58	11.5	s	70	17	10 P	10:30P	.01	
27	76	5 P	67	12 P	71.5	95	1.4	nw	62	15	2 A	8 P	1.24	
28	87	2 P	65	4 A	76.0	73	4.6	se	34	6				
29	80	12M	65	6 A	72.5	79	3.4	s	78	15	1 P	3 P	.57	
30	86	3 P	68	2 A	77.0	81	4.3	se	65	25	12 M	5 P	.23	
31	86	6 P	62	5 A	74.0	73	14.4	sw	33	6				

*Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

July 1944		Normal	Extremes
Barometer, in inches			
(Readings reduced to sea level)			
Maximum	30.29, 3rd	30.27	30.50, 1892
Minimum	29.57, 27th	29.59	29.27, 1932
Mean semi-daily	29.969	29.96	
Range	0.72	0.68	0.97, 1892; 0.47, 1938
Air Temperature, in degrees F.			
Highest	93, 8th, 9th	93.9	104, 1911
Lowest	50, 22nd	46.4	40, 1890, 1898
Mean	72.9	70.8	74.7, 1921; 66.3, 1891
Range	43	47.7	
Highest mean daily	81.5, 9th		
Lowest mean daily	66, 21st, 22nd		
Mean maximum	85.5		
Mean minimum	60.4		
Greatest daily range	33, 3rd, 5th, 26th		
Least daily range	9, 27th		
Precipitation, in inches			
Precipitation	3.88	4.10	14.51, 1897; 0.70, 1929
Snow	—		
Maximum precipitation in 24 hrs.	1.24, 27th		
Number of days with .01 or more	12	11	20, 1915; 4, 1924
Wind, in miles			
Total movement	2747	3422	5097, 1909; 1109, 1894
Greatest daily movement	188, 12th		
Least daily movement	33, 31st		
Mean hourly velocity	3.7	4.6	
Maximum velocity	32, 16th	28.7	44, 1936
Wind, direction			
Prevailing direction	SW	SW	
North, days	0		
Northeast, days	0		
East, days	0		
Southeast, days	9		
South, days	5		
Southwest, days	5		
West, days	2		
Northwest, days	10		
Weather			
Mean relative humidity, percent	66.8	68.4	
Mean cloudiness, percent	53	50.9	70, 1943; 31, 1924
Number of clear days	19	10	22, 1923; 0, 1915
Number of fair days	6	14	24, '09, '21; 5, '89, '23, '28 '36
Number of cloudy days	6	7	18, 1889; 0, 1910
Number hours bright sunshine	335	268	371, 1910; 180, 1931
Percent of possible hours of bright sunshine	72.5	58	
Thunder and lightning	4th, 11th, 16th 20th, 21st, 25th, 27th, 29th, 30th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1943.

REMARKS

The weather during July was warmer than usual, with more sunshine and less wind than normal. Eight heavy thunderstorms during the month brought much needed rainfall.

The mean temperature for the month was 72.9 degrees, the normal for July being 70.8 degrees. The highest temperature was 93 degrees on the 8th and 9th, and the lowest 50 degrees on the 22nd. A 21-day period beginning June 26 and ending July 16, when the maximum temperatures were in the 80's and 90's every day without a break, made a rather uncomfortable warm spell. In 1911 there was a 29-day period when the daily maximum temperatures, with the exception of one day, ranged from 80 degrees to 104 degrees. On three consecutive days during that period the afternoon temperatures reached 102.5, 104, and 101.5 degrees respectively. Other warm Julys were recorded in 1921 and 1935.

The total precipitation was 3.88 inches, compared with the normal for July of 4.10 inches. The total precipitation since the first of the year is now 21.53 inches, while the normal for this period is 25.30 inches.

There were 335 hours of sunshine, the normal being 268 hours. The total wind movement was 2747 miles as compared to the normal for July of 3422 miles.

Dr. Shaw makes the following comments: "The progress of vegetation during July was about normal. There were hot periods and, at times, lack of rain threatened to cause drought conditions. However, timely showers relieved the situation, and the month closed with enough moisture in the soil to maintain normal growth of crops for a week or more. Early varieties of apples matured somewhat earlier than normal. Hail on July 30 damaged crops a little to the north of us. The hay crop was generally small and there has not yet been enough rain to grow a very heavy second crop."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 668 August, 1944

Meteorological Observations

FOR

AUGUST

1944

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	89	2 P	60	5 A	74.5	70	10.9	w	30	4				
2	85	3 P	68	5 A	76.5	84	6.2	se	55	10				
3	85	5 P	67	12 P	76.0	82	8.7	ne	97	12	7:30 A	9:00 A	.16	
4	96	4 P	64	3 A	80.0	78	10.8	s	26	5				
5	94	2 P	70	5 A	82.0	67	7.0	sw	89	12				
6	81	3 P	70	7 A	75.5	77	6.4	nw	122	13				
7	71	1 P	62	5 A	66.5	80	0.7	nw	124	10	2:30 A	3:00 A	.02	
8	81	5 P	57	6 A	69.0	58	14.2	nw	134	14				
9	85	5 P	49	6 A	67.0	61	14.2	sw	43	4				
10	93	4 P	57	5 A	75.0	68	14.2	sw	81	10				
11	97	3 P	63	6 A	80.0	66	14.1	s	66	10				
12	99	3 P	68	6 A	83.5	66	14.1	se	126	11				
13	96	2 P	72	6 A	84.0	83	10.3	se	109	8				
14	94	12 M	74	4 A	84.0	87	3.7	e	97	36	1:00 P	4:30 P	2.18	
15	93	5 P	67	4 A	80.0	82	10.7	e	55	7			T	
16	95	3 P	73	6 A	84.0	79	6.4	e	88	10				
17	94	1 P	70	4 P	82.0	79	8.7	e	87	25	2:00 P	10:00 P	1.72	
18	88	5 P	59	12 P	73.5	71	9.3	w	134	25	6:00 A	6:30 A	.02	
19	75	3 P	50	6 A	62.5	67	13.8	nw	134	17				
20	79	4 P	45	6 A	62.0	53	13.7	se	62	7				
21	85	2 P	58	5 A	71.5	65	7.7	se	153	13	10:00 P	11:30 P	.04	
22	83	4 P	65	6 A	74.0	83	5.3	se	132	9	0 A	3 A	.04	
23	80	3 P	60	6 A	70.0	62	9.0	sw	107	25	11:30 P	12 P	.03	
24	73	3 P	56	6 A	64.5	79	3.5	nw	156	17	2 A	4 P	.12	
25	72	3 P	45	5 A	58.5	64	13.5	nw	84	12			T	
26	74	2 P	43	6 A	58.5	64	13.5	nw	101	15				
27	79	3 P	47	5 A	63.0	58	13.5	nw	107	11				
28	80	3 P	45	5 A	62.5	59	8.8	sw	50	5				
29	77	1 P	59	5 A	68.0	68	4.5	sw	128	13			T	
30	79	4 P	52	5 A	65.5	67	13.3	sw	150	18				
31	86	3 P	54	5 A	70.0	67	10.3	sw	51	7				

*Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

August, 1944		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.36, 20th	30.32	30.50, 1934
Minimum	29.63, 17th	29.61	28.87, 1930
Mean semi-daily	29.986	30.00	
Range	0.73	0.71	
Air Temperature, in degrees F.			
Highest	99, 12th	91.6	100, 1918
Lowest	43, 26th	43.4	37, 1894, 1908
Mean	72.4	68.6	34, 1940
Range	56	48.1	
Highest mean daily	84, 13th, 14th, 16th		
Lowest mean daily	58.5, 25th, 26th		
Mean maximum	85.1		
Mean minimum	59.6		
Greatest daily range	36, 9th, 10th		
Least daily range	9, 7th		
Precipitation, in inches			
Precipitation	4.33	4.08	8.40, 1928; .31, 1894
Snow	—		
Maximum precipitation in 24 hrs.	2.18, 14th		
Number of days with .01 or more	9	11	16, 1892, 1933; 4, 1899
Wind, in miles			
Total movement	2978	3127	4,271, 1910; 1,920, 1894
Greatest daily movement	156, 24th		
Least daily movement	26, 4th		
Mean hourly velocity	4.0	4.2	
Maximum velocity	36, 14th	22.7	40, 1941
Wind, direction			
Prevailing direction	SW	SW	
North, days	0		
Northeast, days	1		
East, days	4		
Southeast, days	6		
South, days	2		
Southwest, days	8		
West, days	2		
Northwest, days	8		
Weather			
Mean relative humidity, percent	70.8	70.2	
Mean cloudiness, percent	55	49.7	67, 1901; 27, 1923
Number of clear days	17	9	23, 1941; 0, 1915, 1929
Number of fair days	11	13	25, 1912; 3, 1939
Number of cloudy days	3	9	18, 1901, '28; 2, 1910, '23
Number hours bright sunshine	301	237	332, 1941; 152, 1915, 1929
Percent of possible hours of bright sunshine	78.7	55.2	
Thunder and lightning	14th, 17th, 22nd		
First Frost	—	Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1943.

REMARKS

The weather during August was marked with several extremes. The first three weeks were very warm with 10 days on which the temperature exceeded 90 degrees, the hottest being 99 degrees on August 12. This has been exceeded only once in August in the history of this station. This was in 1918 when the maximum temperature was 100 degrees. The weather cooled off during the last week in August so that the mean temperature for the month was 72.4 degrees. This has been exceeded only twice since 1889; in 1937 when the mean for August was 73.3 degrees and 1939 when it was 73.5 degrees. The mean temperature for the three summer months of the past season was 70.5 degrees. This equals the previous record for hot summer months which was reached in 1939.

The rainfall during the month was 4.33 inches. Of this amount 2.18 inches fell on the afternoon of the 14th. During part of this storm rain fell at a greater intensity than had previously been recorded at this station. A total of 2.02 inches fell in one-half hour and 1.10 inches fell in 10 minutes. The rain on the 14th was followed by another heavy rain on the 17th when 1.72 inches fell. There were 301 hours of bright sunshine, the normal being 237 hours. The mean relative humidity for the month was 70.8 percent. The highest wind velocity was 36 miles per hour on the 14th.

Dr. J. K. Shaw makes the following comments: "The weather during August was characterized by extremely hot periods and it was on the dry side much of the time. The month closes with the soil pretty dry. Timely rains broke the drought before disastrous results took place but many crops suffered injury. Fruit plants stood the dry weather with little injury; and apples, peaches, and other fruits are sizing and coloring well. Except in orchards on low, frosty sites, where the freeze of May 19 was disastrous, all tree fruits promise good crops of excellent fruit."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 669 September 1944

Meteorological Observations

FOR

SEPTEMBER

1944

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	83	12 M	65	5 A	74.0	81	2.7	se	69	7	5 P	11:30 P	.16	
2	89	1 P	65	11 P	77.0	69	9.8	w	87	13	9:30 P	10 P	.35	
3	81	3 P	61	12 P	71.0	66	13.1	nw	158	15	0 A	2:30 A	.05	
4	79	12 M	53	5 A	66.0	72	8.4	sw	59	8				
5	76	1 P	62	12 P	69.0	90	1.9	sw	55	8	2:30 P	3 P	.22	
6	81	3 P	58	4 A	69.5	76	5.6	se	62	12				
7	77	1 P	53	12 P	65.0	65	12.9	w	185	20				
8	71	3 P	51	5 A	61.0	64	7.2	w	191	22				
9	67	2 P	49	12 P	58.0	73	2.6	w	81	10				
10	76	3 P	44	6 A	60.0	71	12.8	w	49	7				
11	81	1 P	45	6 A	63.0	67	12.8	sw	39	8				
12	70	1 P	50	5 A	60.0	80	0.4	nw	54	8	5:30 P	11 P	.49	
13	63	4 P	57	0 A	60.0	98	0.0	nw	109	8	4 A	10 P	.54	
14	76	3 P	62	0 A	69.0	98	0.0	ne	205	55	1 A	12 P	2.66	
15	84	1 P	61	12 P	72 5	74	6.5	w	191	48	0 A	1 A	.07	
16	80	2 P	55	5 A	67.5	78	6.4	nw	40	10				
17	82	3 P	56	5 A	69.0	72	12.6	e	75	8				
18	71	4 P	58	12 P	64.5	81	6.4	e	49	8				
19	72	2 P	53	3 A	62.5	92	1.0	sw	35	5				
20	74	1 P	64	5 A	69.0	89	0.0	se	38	4				
21	78	2 P	61	12 P	69.5	88	0.8	se	126	13	10 P	11 P	.41	
22	69	4 P	47	12 P	58.0	57	11.2	w	226	28				
23	59	2 P	36	12 P	47.5	66	12.1	nw	183	20				
24	64	2 P	33	6 A	48.5	74	12.1	sw	50	7				
25	67	3 P	34	5 A	50.5	66	9.0	e	55	8				
26	74	1 P	44	5 A	59.0	71	7.4	e	105	9				
27	74	2 P	52	6 A	63.0	78	9.4	se	70	9				
28	68	1 P	60	2 A	64 0	93	0.0	se	131	12	1 P	11 P	.31	
29	65	0 A	41	12 P	53.0	71	12.0	w	281	25	0 A	12:30 A	.05	
30	66	3 P	36	6 A	51.0	67	9.9	nw	94	12				

*Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

September, 1944		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.53, 18th	30.45	30.65, 1924
Minimum	29.13, 14th	29.57	28.41, 1938
Mean semi-daily	30.029	30.06	
Range	1.40	.88	1.99, 1938; .57, 1910
Air Temperature, in degrees F.			
Highest	89, 2nd	87.7	97, 1895, 1929
Lowest	33, 24th	33.2	24.5, 1914
Mean	63.0	61.7	
Range	56	54.5	
Highest mean daily	77.0, 2nd		
Lowest mean daily	47.5, 23rd		
Mean maximum	73.9		
Mean minimum	52.2		
Greatest daily range	36, 11th		
Least daily range	6, 13th		
Precipitation, in inches			
Precipitation	5.31	4.24	14.55, 1938; .52, 1914
Snow	—		
Maximum precipitation in 24 hrs.	2.66, 14th		
Number of days with .01 or more	11	10	16, 1933; 3, 1903
Wind, in miles			
Total movement	3152	3271	4,686, 1896; 1,414, 1894
Greatest daily movement	321, 15th		
Least daily movement	35, 19th		
Mean hourly velocity	4.4	4.5	
Maximum velocity	55, 14th	25.9	80, 1938
Wind, direction			
Prevailing direction	WSW	WSW	
North, days	0		
Northeast, days	1		
East, days	4		
Southeast, days	6		
South, days	0		
Southwest, days	5		
West, days	8		
Northwest, days	6		
Weather			
Mean relative humidity, percent	76.2	73.6	
Mean cloudiness, percent	56	49.9	70, 1934; 27, 1908, 1914
Number of clear days	13	10	19, 1932; 2, 1907, 1938
Number of fair days	7	10	19, 1908; 3, 1889
Number of cloudy days	10	10	20, 1934; 3, 1941
Number hours bright sunshine	207	201	255, 1916; 106, 1934
Percent of possible hours of bright sunshine	55.5	54.9	
Thunder and lightning	1st, 2nd, 21st		
First Frost	Sept. 21		Aug. 22, '94, '95; Oct. 13, '09

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1943.

REMARKS

The hurricane on the 14th and 15th was the outstanding feature of the weather during September. The storm was much less severe in Amherst than the hurricane of 1938 and comparatively little damage was done in this section. The highest wind velocity was 55 miles per hour at 10:45 P. M. (E. S. T.) on the 14th. The direction ranged from north to northeast. The barometer reached its lowest reading of 29.13 inches at 10:30 P. M. The total rainfall from the 12th to the 15th was 3.76 inches.

The mean temperature during the month was 63 degrees while the normal mean temperature for September is 61.7 degrees. The lowest temperature was 33 degrees on the 24th. There were no killing frosts during the month, although there were light frosts on low ground on the 24th and 25th. The domestic heating load during the month was 122 degree-days compared to a normal of 149 degree-days in September.

The rain fall during the month was 5.31 inches, the normal being 4.24 inches. The total precipitation since January 1 is 31.17 inches, while the normal precipitation for this period is 33.62 inches. There were 207 hours of bright sunshine which is 6 hours more than normal for September.

Dr. J. K. Shaw, research pomologist, makes the following comment: "While the hurricane on September 14 was by no means so severe as that of 1938, it ruined some shade and orchard trees and blew off from 20 to 50 percent of the McIntosh apples remaining on the trees. Later varieties suffered less but some of these fell. The taller farm crops still in the field were injured. Corn fields were much disturbed. Hurricane damage was worse in the eastern part of the state where a loss up to 75 percent of the McIntosh still on the trees was reported. Otherwise, the progress of vegetation was about normal. Most fruits ripened a little earlier than usual, perhaps due to abnormally warm weather during the summer."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 670 October 1944

Meteorological Observations

FOR

OCTOBER

1944

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	67	3 P	38	7 A	52.5	72	11.8	nw	114	12				
2	63	1 P	39	6 A	51.0	67	11.7	nw	209	25				
3	64	4 P	33	12 P	48.5	58	2.2	nw	104	13				
4	67	3 P	29	5 A	48.0	70	11.6	e	55	6				
5	72	2 P	35	6 A	53.5	76	11.6	se	62	5				
6	67	8 P	57	0 A	62.0	97	0.0	se	132	11	8 A	2 P	.36	
7	85	2 P	59	12 P	72.0	76	7.0	se	109	13				
8	77	3 P	49	12 P	63.0	78	7.3	sw	52	10	2:30 A	3 A	.04	
9	71	2 P	43	3 A	57.0	81	5.0	se	38	5				
10	70	3 P	49	12 P	59.5	76	6.2	sw	69	9				
11	68	2 P	39	7 A	53.5	78	7.7	sw	67	9				
12	69	3 P	35	6 A	52.0	79	7.5	s	51	7				
13	58	4 P	43	4 A	50.5	91	0.0	sw	44	5				
14	59	2 P	50	12 P	54.5	97	1.0	w	77	28	10 A	10:30 A	.26	
15	49	1 P	31	12 P	40.0	62	8.9	w	306	28				
16	56	1 P	27	5 A	41.5	63	3.8	s	119	13				
17	64	4 P	37	2 A	50.5	64	11.0	w	98	14				
18	76	4 P	35	6 A	55.5	65	11.0	se	66	8				
19	64	9 A	34	12 P	49.0	58	7.9	nw	233	25				
20	53	1 P	29	6 A	41.0	74	2.1	nw	59	10	10:30 P	11:30 P	.05	
21	46	7 P	41	5 A	43.5	96	0.0	nw	256	17	0 A	9 P	1.03	
22	51	3 P	34	12 P	42.5	56	7.3	w	243	20				
23	62	4 P	29	7 A	45.5	63	10.8	se	107	12				
24	64	3 P	36	6 A	50.0	71	4.3	se	123	9				
25	65	3 P	43	2 A	54.0	92	4.2	e	81	10				
26	62	2 P	42	12 P	52.0	73	10.6	w	135	18				
27	47	3 P	35	12 P	41.0	61	10.6	nw	326	25				
28	54	3 P	30	7 A	42.0	45	10.5	nw	342	22				
29	47	2 P	38	12 P	42.5	60	10.5	w	431	32				
30	53	1 P	30	12 P	41.5	51	10.5	w	214	20				
31	58	3 P	24	7 A	41.0	70	10.4	se	74	11				

*Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

October, 1944		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.66, 31st	30.53	30.68, 1929
Minimum	29.50, 14th	29.42	29.00, 1926
Mean semi-daily	30.064	30.06	
Range	1.16	1.11	1.47, 1926; .76, 1899
Air Temperature, in degrees F.			
Highest	85, 7th	79.4	90.5, 1908
Lowest	24, 31st	23.4	17, 1936
Mean	50.0	50.5	56.4, 1920; 43.2, 1890
Range	61	56.0	
Highest mean daily	72, 7th		
Lowest mean daily	40, 15th		
Mean maximum	62.2		
Mean minimum	37.8		
Greatest daily range	38, 4th		
Least daily range	5, 21st		
Precipitation, in inches			
Precipitation	1.74	3.29	8.81, 1911; .01, 1924
Snow	—		
Maximum precipitation in 24 hrs.	108, 20th, 21st		
Number of days with .01 or more	5	9	15, 1913; 1, 1897, 1924
Wind, in miles			
Total movement	4396	4074	5,467, 1910; 2,540, 1894
Greatest daily movement	431, 29th		
Least daily movement	38, 9th		
Mean hourly velocity	5.9	5.4	
Maximum velocity	32, 29th	29.5	42, 1937
Wind, direction			
Prevailing direction	SW	W	
North, days	0		
Northeast, days	0		
East, days	2		
Southeast, days	8		
South, days	2		
Southwest, days	4		
West, days	7		
Northwest, days	8		
Weather			
Mean relative humidity, percent	71.6	69.0	
Mean cloudiness, percent	53	48	67, 1932; 18, 1924
Number of clear days	16	10	21, 1938; 1, 1911
Number of fair days	9	10	17, 1924; 3, 1938
Number of cloudy days	6	11	19, 1896; 3, 1924
Number hours bright sunshine	225	175.0	232, '23, '38; 91, 1913
Percent of possible hours of bright sunshine	66	51.3	
Thunder and lightning	7th, 8th, 9th		
First frost	Oct. 4	Sept. 21	Aug. 22, '94, '95; Oct. 15, '39

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1943.

REMARKS

The weather during October was dry and clear, with the temperature very near normal. Rain fell on only five days, with a total fall of 1.74 inches, whereas the normal for October is 3.29 inches. The rainfall during the past three months—August, September and October—was 11.38 inches, while the normal rainfall for this period is 11.61 inches. There were 225 hours of bright sunshine compared to a normal of 175 hours.

The mean temperature for the month was 50.0 degrees. The normal mean temperature for October is 50.5 degrees. The highest temperature was 85 degrees on the 7th and the lowest, 24 degrees on the 31st. The domestic heating load was 472 degree-days, the normal for October being 456 degree-days. The total heating load for September and October this year was 594 degree-days, while the normal for these two months is 605 degree-days.

The total wind travel during the month was 4396 miles, the normal for October being 4074 miles. A maximum velocity of 32 miles per hour was recorded on the 29th.

The mean relative humidity was 71.6 percent, while the normal for October is 69.0 percent.

Correction: A typographical error on page 3 in the September bulletin gives September 21 as the date of the first frost in 1944. There was no frost at this station in September. The date "September 21" should appear in the "Normal" column.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 671 November 1944

Meteorological Observations

FOR

NOVEMBER

1944

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	66	4 P	45	3 A	55.5	84	8.7	se	99	11				
2	66	3 P	42	12 P	54.0	86	8.0	se	50	5				
3	68	4 P	39	1 A	53.5	88	8.1	se	36	7			T	
4	64	3 P	46	7 A	55.0	91	4.5	sw	56	6				
5	54	1 P	36	12 P	45.0	62	10.0	w	222	22				
6	39	2 P	33	9 A	36.0	76	0.1	nw	341	22	10:30 A	2 P	.04	.25
7	46	2 P	33	7 A	39.5	56	9.3	nw	335	20				
8	50	11 A	28	12 P	39.0	66	3.8	nw	92	15				
9	43	3 P	25	3 A	34.0	83	2.1	w	13	1				
10	50	9 P	41	0 A	45.5	97	0.0	w	11	1	3 A	6 P	.73	
11	52	10 A	32	12 P	42.0	72	0.3	w	174	25	7 A	8 A	.02	
12	45	3 P	28	12 P	36.5	60	9.9	nw	253	20				
13	49	3 P	22	7 A	35.5	63	9.9	s	67	17				
14	53	3 P	23	6 A	38.0	63	9.8	w	60	13				
15	42	3 P	28	2 A	35.0	75	0.7	w	25	4	11 P	12 P	.03	
16	39	3 A	32	5 P	35.5	93	0.0	nw	129	15	4 A	9 P	.90	.50
17	44	3 P	32	0 A	38.0	76	0.7	nw	239	14				
18	40	1 P	34	12 P	37.0	59	0.0	n	131	10				
19	48	3 P	27	12 P	37.5	67	9.6	nw	104	13				
20	43	7 P	23	7 A	33.0	84	1.7	n	20	7				
21	42	0 A	36	11 P	39.0	79	0.0	n	297	22	7 P	8 P	.01	
22	38	1 P	29	12 P	33.5	90	0.0	nw	224	18	6 A	1 P	.03	T
23	40	3 P	24	12 P	32.0	66	7.0	sw	88	17				
24	39	2 P	19	7 A	29.0	78	4.7	nw	133	22				
25	38	2 P	28	12 P	33.0	59	3.7	nw	288	25				
26	52	3 P	23	7 A	37.5	68	9.3	w	131	22				
27	46	9 P	24	1 A	35.0	95	0.0	se	76	11	6 A	12 P	.70	
28	50	11 A	29	12 P	39.5	73	5.1	nw	134	20	1 A	1:30 A	.02	
29	33	12 P	28	1 A	30.5	81	0.0	nw	124	9	8 A	12 P	.05	
30	39	1 P	30	12 P	34.5	85	0.0	s	278	28	0 A	2 P	1.68	
31														

*Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

November, 1944		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.56, 2nd	30.59	30.87, 1932
Minimum	28.87, 30th	29.30	28.73, 1904
Mean semi-daily	30.005	30.05	
Range	1.69	1.29	1.84, 1904; .89, 1943
Air Temperature, in degrees F.			
Highest	68, 3rd	66.0	75, 1924, 1938
Lowest	19, 24th	12.9	–4, 1938
Mean	39.0	38.9	44.1, 1931; 33.6, 1901
Range	49	53.0	
Highest mean daily	55.5, 1st		
Lowest mean daily	29.0, 24th		
Mean maximum	47.3		
Mean minimum	30.6		
Greatest daily range	30, 14th		
Least daily range	5, 29th		
Precipitation, in inches			
Precipitation	4.21	3.41	8.64, 1927; .63, 1917
Snow	0.75	2.34	13.50, 1938
Maximum precipitation in 24 hrs.	1.73, 29th, 30th		
Number of days with .01 or more	11	9	22, 1921; 2, 1904
Wind, in miles			
Total movement	4230	4531	5,978, 1906; 2,589, 1889
Greatest daily movement	341, 6th		
Least daily movement	11, 10th		
Mean hourly velocity	5.9	6.3	
Maximum velocity	28, 30th	30.3	44, 1938
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	3		
Northeast, days	0		
East, days	0		
Southeast, days	4		
South, days	2		
Southwest, days	2		
West, days	7		
Northwest, days	12		
Weather			
Mean relative humidity, percent	75.8	70.6	
Mean cloudiness, percent	68	55.1	72, 1900, 1927; 34, 1917
Number of clear days	11	6	15, 1903; 1, 1900, 1911, 1927
Number of fair days	5	9	16, '12; 4, '89, '30, '32, '35
Number of cloudy days	14	15	24, 1927; 9, 1905, 1917
Number hours bright sunshine	127	121	182, 1903; 66, 1927
Percent of possible hours of bright sunshine	43.3	41.3	
Thunder and lightning	—		
First snow	6th	Nov. 6	Oct. 10, '25; Nov. 27, '31

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1943

REMARKS

The weather during November was near normal in most respects. The mean temperature for the month was 39 degrees which is one tenth of a degree higher than normal. The highest temperature was 68 degrees on the 3rd and the lowest was 19 on the 24th. The normal minimum for November is 12.9 degrees. In 1938 the temperature dropped to –4 degrees in November. The domestic heating load for November was 782 degree-days compared to a normal of 784 degree-days. The total heating load for the season to the end of November is 1376 degree-days, while the normal for the period is 1389. This represents 20 percent of the normal year's heating load.

The total precipitation during the month was 4.21 inches. Of this amount, 1.73 inches fell during the storm on the 29th and 30th. This storm which was quite severe on the coast gave only moderate wind velocities at this station. The highest velocity recorded was 28 miles per hour. It was accompanied with a very low barometer. The minimum was 28.87 inches on the 30th. The normal precipitation for November is 3.41 inches. The first snow of the season fell on November 6 when 0.25 of an inch fell. This is the normal date for the first snow. Again on the 16th, 0.50 of an inch of snow fell. The normal snowfall for November is 2.34 inches. There were 127 hours of bright sunshine, the normal being 121 hours. The mean relative humidity was 75.8 percent, while the normal for November is 70.6 percent.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorogical Series   Bulletin No. 672   December 1944

Meteorological Observations

FOR

DECEMBER

1944

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N.   Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
Day	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	33	11 A	27	4 A	30.0	69	0.8	sw	409	22				
2	27	0 A	12	12 P	19.5	55	4.4	nw	269	22				
3	26	2 P	11	4 A	18.5	54	9.3	nw	263	20				
4	37	2 P	14	7 A	25.5	54	9.2	nw	225	18				
5	49	2 P	18	5 A	33.5	54	9.2	nw	44	5				
6	39	1 P	18	6 A	28.5	76	3.7	w	7	1				
7	49	3 P	20	7 A	34.5	76	8.4	n	17	7				
8	49	9 P	29	0 A	39.0	83	0.0	ne	96	25	1 P	11 :30 P	.27	
9	44	0 A	30	12 P	37.0	69	2.7	w	210	22	1 A	2 A	.05	
10	41	12 M	30	0 A	35.5	64	0.0	w	229	20				
11	40	1 P	22	7 A	31.0	79	6.8	w	64	14				
12	40	9 A	28	12 P	34.0	90	0.0	se	260	28	2 A	8 :30 P	.32	.25
13	31	12 M	22	12 P	26.5	69	0.0	w	316	25				
14	33	3 P	17	7 A	25.0	77	9.2	w	118	17				
15	38	2 P	18	6 A	28.0	72	9.2	se	131	12				
16	42	2 P	29	0 A	35.5	73	2.8	se	163	25				
17	42	2 P	31	3 A	36.5	57	3.8	sw	262	25				
18	34	0 A	20	12 P	27.0	47	4.3	nw	188	15				
19	20	0 A	1	12 P	10.5	78	2.0	nw	179	13	4 A	1 :30 P	.13	2.50
20	29	2 P	–3	1 A	13.0	69	5.1	se	135	17				
21	33	8 A	12	12 P	22.5	48	5.7	w	270	25				
22	23	3 P	–6	7 A	8.5	61	9.0	se	69	13				
23	26	3 P	–1	3 A	12.5	81	0.0	se	34	6				
24	38	3 P	21	8 A	29.5	79	0.0	s	33	5				
25	38	9 P	28	8 A	33.0	92	0.0	se	30	5	3 A	10 P	.49	.50
26	37	2 A	12	12 P	24.5	42	9.2	w	314	32				
27	18	3 P	1	8 A	9.5	69	2.7	w	47	12	6 P	12 P	.40	2.00
28	31	11 A	16	12 P	23.5	53	9.2	w	331	48	0 A	4 A	.32	4.00
29	19	3 P	4	7 A	11.5	47	9.2	nw	150	18				
30	28	2 P	0	7 A	14.0	52	9.1	nw	44	6				
31	32	8 P	20	0 A	26.0	80	0.0	w	29	5	9 A	12 P	.20	T

*Based on least time required to blow one mile.

FERNAND E. BARTLETT. *Observer*

MONTHLY SUMMARY

December, 1944		Normal	Extremes
Barometer, in inches **(Readings reduced to sea level)**			
Maximum	30.71, 27th	30.66	30.96, 1889
Minimum	29.17, 13th	29.27	28.85, 1915
Mean semi-daily	30.084	30.06	
Range	1.54	1.38	1.78, 1895; 1.01, 1892
Air Temperature, in degrees F.			
Highest	49, 5th, 7th, 8th	54.3	65.5, 1908
Lowest	–6, 22nd	–1.9	–22.5, 1917
Mean	25.3	27.5	36.9, 1891; 17.1, 1917
Range	55	56.2	
Highest mean daily	39, 8th		
Lowest mean daily	8.5, 22nd		
Mean maximum	34.4		
Mean minimum	16.2		
Greatest daily range	32, 20th		
Least daily range	6, 1st		
Precipitation, in inches			
Precipitation	2.18	3.39	7.77, 1901; .58, 1943
Snow	9.25	8.50	26.50, '02; t, 1891, 1943
Maximum precipitation in 24 hrs.	.72, 27th, 28th		
Number of days with .01 or more	8	10	17, 1902; 4, 1892, 1943
Wind, in miles			
Total movement	4936	4710	6,694, 1925; 3,239, 1918
Greatest daily movement	409, 1st		
Least daily movement	7, 6th		
Mean hourly velocity	6.6	6.3	
Maximum velocity	48, 28th	31.4	48, 1938, 1943
Wind, direction			
Prevailing direction	W	WNW	
North, days	1		
Northeast, days	1		
East, days	0		
Southeast, days	7		
South, days	1		
Southwest, days	2		
West, days	11		
Northwest, days	8		
Weather			
Mean relative humidity, percent	66.7	69.4	
Mean cloudiness, percent	54	54.9	71, 1929; 39, 1919
Number of clear days	12	8	15, 1890; 2, 1922, 1933
Number of fair days	6	9	16, '09; 4, '89 '30, '31, '36, '38
Number of cloudy days	13	14	23, '33; 7, '09, '23
Number hours bright sunshine	145	128	172, 1896; 63, 1933
Percent of possible hours of bright sunshine	51.2	45.2	

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1943.

ANNUAL SUMMARY

Annual, 1944		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.73, Mar. 22	30.81	31.05, 1920, 1943
Minimum	28.87, Nov. 30	28.95	28.41, 1938
Mean semi-daily	30.031	30.01	
Range	1.86	1.85	2.47, 1938; 1.38, 1933
Air Temperature, in degrees F.			
Highest	99, Aug. 12	95.7	104, 1911
Lowest	–6, Dec. 22	–12.2	–26, 1904
Mean	48.4	47.4	49.8, 1921; 44, 1904
Range	105	107.8	
Highest mean daily	84.0, Aug. 13, 14, 16		
Lowest mean daily	8.5, Dec. 22		
Mean maximum	59.0	57.8	
Mean minimum	37.7	36.5	
Greatest daily range	48, Feb. 14		
Least daily range	2, Feb. 27		
Precipitation, in inches			
Precipitation	39.30	43.70	59.00, 1938; 30.68, 1908
Snow	31.50	47.78	89.00, 1893; 24.50, 1919
Maximum precipitation in 24 hrs.	2.66, Sept. 14		
Number of days with .01 or more	107	124	144, 1902; 96, 1924
Wind, in miles			
Total movement	48,557	52,223	63,571, 1908; 36,257, 1894
Greatest daily movement	484, Mar. 1		
Least daily movement	3, Jan. 18		
Mean hourly velocity	5.5	5.8	
Maximum velocity	55, Sept. 14	39.5	80, 1938
Wind, direction			
Prevailing direction	W	W	
North, days	9		
Northeast, days	6		
East, days	13		
Southeast, days	82		
South, days	25		
Southwest, days	37		
West, days	76		
Northwest, days	118		
Weather			
Mean relative humidity, percent	68.3	67.6	
Mean cloudiness, percent	56.5	51.7	60, '98, '01, '02; 41, '08, '24
Number of clear days	189	116	217, 1941; 59, 1927
Number of fair days	79	123	182, 1912; 64, 1936
Number of cloudy days	98	126	179, '01, '02; 71, 1910, 1941
Number hours bright sunshine	2772	2,353	3038, 1941; 1864, 1902
Percent of possible hours of bright sunshine	62.2	52.8	
Last snow	Mar. 29	April 15	Mar. 14, '10; May 11, '07
First snow	Nov. 6	Nov. 6	Oct. 10, '25; Dec. 13, '41
Last frost	May 19	May 14	Apr. 14, '43; June 8, '32
First frost	Oct. 4	Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 673 January 1945

Meteorological Observations

FOR

JANUARY

1945

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	55	5 P	30	0 A	42.5	84	0.0	w	151	25	0 A	12 P	1.05	
2	34	0 A	12	12 P	23.0	48	6.7	w	295	32				
3	26	3 P	7	8 A	16.5	52	3.6	se	127	15				
4	38	3 P	21	1 A	29.5	71	0.2	se	75	9	8 A	11 A	.06	1.00
5	27	0 A	11	12 P	19.0	43	9.3	w	229	22				
6	17	3 P	4	8 A	10.5	40	9.2	nw	261	18				
7	19	12 P	6	7 A	12.5	80	0.0	nw	159	17	4 A	8 P	.38	4.50
8	32	2 P	19	0 A	25.5	83	3.0	w	76	17				
9	32	1 P	6	12 P	19.0	73	3.0	nw	117	18				
10	12	3 P	–4	12 P	4.0	45	9.3	w	190	18				
11	19	2 P	–8	3 A	5.5	62	6.2	sw	29	5				
12	33	8 P	–5	2 A	14.0	71	0.0	se	189	20	3 P	5 P	.01	T
13	35	1 P	16	12 P	25.5	69	0.1	nw	135	14				
14	20	12 P	13	8 A	16.5	81	0.0	nw	285	20	6 A	12 P	.38	6.00
15	31	3 P	6	7 A	18.5	81	7.0	nw	184	13				T
16	23	12 P	17	1 A	20.0	83	0.0	nw	253	22	5 A	8 A	.34	3.50
17	24	3 A	14	12 P	19.0	61	4.8	nw	337	22				
18	31	3 P	5	9 A	18.0	52	9.5	nw	145	17				
19	32	3 P	10	12 P	21.0	51	9.5	n	89	14				
20	38	3 P	0	7 A	19.0	57	9.6	nw	48	8				
21	32	3 P	2	7 A	17.0	66	6.2	s	38	4				
22	29	2 P	7	7 A	18.0	79	4.0	w	43	8	2 P	8 P	.15	1.50
23	36	4 P	14	1 A	25.0	67	7.8	w	158	25				
24	27	12 M	–3	12 P	12.0	62	6.0	w	288	45				
25	8	3 P	–10	7 A	–1.0	49	9.7	nw	316	32				
26	14	3 P	–4	5 A	5.0	43	9.8	nw	269	28				
27	27	1 P	6	3 A	16.5	47	9.8	nw	336	25				
28	37	2 P	6	7 A	21.5	49	8.6	se	112	20				
29	29	1 P	18	12 P	23.5	77	4.2	w	164	25	0 A	11 A	.70	7.00
30	28	3 P	13	7 A	20.5	57	10.0	w	232	25				
31	22	1 P	9	6 A	15.5	59	9.9	w	150	22				

*Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

January, 1945		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.44, 3rd	30.70	31.00, 1927
Minimum	28.98, 1st	29.20	28.55, 1913
Mean semi-daily	29.998	30.07	
Range	1.46	1.50	2.18, 1913; 0.97, 1896
Air Temperature, in degrees F.			
Highest	55, 1st	51.1	66.0, 1932
Lowest	–10, 25th	–7.1	–26.0, 1904
Mean	17.8	24.2	34.2, 1913; 13.9, 1918
Range	65	58.2	
Highest mean daily	42.5, 1st		
Lowest mean daily	–1.0, 25th		
Mean maximum	28.0		
Mean minimum	7.7		
Greatest daily range	38, 12th, 20th		
Least daily range	6, 16th		
Precipitation, in inches			
Precipitation	3.07	3.61	7.15, 1898; 1.07, 1896
Snow	23.50	13.32	33, 1898, 1923; 1.50, '08
Maximum precipitation in 24 hrs.	1.05, 1st		
Number of days with .01 or more	8	11	15, '93, '20; 4, 1901
Wind, in miles			
Total movement	5471	5055	7770, 1908; 2896, 1895
Greatest daily movement	337, 17th		
Least daily movement	29, 11th		
Mean hourly velocity	7.4	6.8	
Maximum velocity	45, 24th	32.7	47, 1938
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	1		
Northeast, days	0		
East, days	0		
Southeast, days	4		
South, days	1		
Southwest, days	1		
West, days	11		
Northwest, days	13		
Weather			
Mean relative humidity, percent	62.6	70.1	
Mean cloudiness, percent	51.8	55	78, 1932; 37, 1908
Number of clear days	14	9	20, 1944; 2, 1914
Number of fair days	10	9	18, 1890, 1926; 3, 1916, 1944
Number of cloudy days	7	13	22, 1923, 1931; 4, 1920, 1939
Number hours bright sunshine	177	137	214, 1920; 74, 1932
Percent of possible hours of bright sunshine	60.2	46.7	
Thunder and lightning	29th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1944.

REMARKS

January produced severe winter weather. The mean temperature was 17.8 degrees which is the coldest January since 1920. In that year the mean temperature in January was 15.2 degrees. In only four other years since this station was established in 1889 has January been colder than the present year. On six days the temperature dropped below zero and on only 8 days was the maximum above 32 degrees. The lowest temperature was −10 degrees on the 25th. The heating load was 1462 degree-days whereas the normal for January is 1265 degree-days. The total heating load for the season to the end of January is 4070 degree-days, the normal being 3817 degree-days. The heating load for the season to the end of January is nearly 7 percent higher than normal.

The snowfall during the month was 23.50 inches compared to a normal of 13.32 inches. The snowfall for the winter is 33.50 inches; the normal to the end of January is 24.16 inches. The heavy snowfall in January was equalled in 1904 and has been exceeded only 3 times since 1889. The total precipitation was 3.07 inches, the normal being 3.61 inches. There were 177 hours of bright sunshine, the normal being 137 hours. The highest wind velocity was 45 miles per hour on the 24th.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 674 February 1945

Meteorological Observations

FOR

FEBRUARY

1945

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
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AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	23	3 P	5	7 A	14.0	52	10.0	nw	226	28				
2	21	3 P	11	7 A	16.0	53	10.0	w	351	28				
3	32	3 P	5	8 A	18.5	59	10.0	nw	196	18				
4	33	2 P	3	8 A	18.0	60	6.8	sw	48	7	9 P	12 P	.09	1.00
5	33	4 P	6	12 P	19.5	75	8.2	nw	179	18	0 A	8 A	.21	3.00
6	37	4 P	–1	7 A	18.0	75	10.1	se	31	7				
7	39	3 P	2	4 A	20.5	71	7.2	nw	80	12				
8	32	4 A	23	12 P	27.5	87	0.0	nw	213	20	8 A	10 P	.35	7.00
9	44	3 P	22	7 A	33.0	77	8.0	nw	212	22				
10	38	4 P	19	0 A	28.5	78	2.5	e	24	9				
11	43	3 P	28	10 P	35.5	57	10.4	w	154	20				
12	39	3 P	23	8 A	31.0	56	5.5	w	124	18				
13	25	4 P	14	7 A	19.5	68	0.0	nw	94	13				
14	26	3 P	21	11 P	23.5	80	2.1	nw	177	13	6 A	4 P	.05	1.00
15	38	3 P	18	4 A	28.0	78	3.4	se	65	11	8 P	12 P	.09	1.00
16	42	11 A	30	0 A	36.0	57	7.0	w	232	28	0 A	8 A	.41	3.00
17	35	1 P	17	12 P	26.0	51	4.0	w	200	28				
18	29	11 A	4	7 A	16.5	66	10.6	w	121	20				
19	29	3 P	5	7 A	17.0	65	10.7	w	133	12				
20	30	3 P	–1	5 A	14.5	73	3.5	n	59	7				
21	39	4 P	10	7 A	24.5	73	8.0	e	86	11	8 P	12 P	.09	T
22	38	12 P	28	1 A	33.0	97	0.0	se	90	20	0 A	2 P	1.31	
23	42	3 P	34	8 A	38.0	75	3.0	w	126	20	4 A	7 A	.02	
24	37	1 P	31	6 A	34.0	60	5.4	w	274	32				
25	41	3 P	23	12 P	32.0	53	11.0	w	240	22				
26	43	12 P	20	3 A	31.5	89	0.0	sw	50	11	12:30 P	9:30 P	.62	
27	43	0 A	28	8 P	35.5	54	4.2	w	341	40	2 A	5:30 A	.05	
28	42	3 P	20	7 A	31.0	52	9.4	se	151	22	9:30 P	12 P	.04	0.50

*Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

February, 1945		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.55, 25th	30.63	31.05, 1920
Minimum	29.59, 27th	29.24	28.56, 1895
Mean semi-daily	30.085	30.04	
Range	0.96	1.38	1.89, '00, '08; .88, '13, '31
Air Temperature, in degrees F.			
Highest	44, 9th	50.5	65.0, 1930
Lowest	–1, 6th, 20th	–7.4	–23, 1943
Mean	25.7	23.7	
Range	45	58	
Highest mean daily	38, 23rd		
Lowest mean daily	14, 1st		
Mean maximum	35.5	32.8	
Mean minimum	16.0	14.5	
Greatest daily range	38, 6th		
Least daily range	5, 14th		
Precipitation, in inches			
Precipitation	3.33	3.19	8.12, 1900; 0.62, 1901
Snow	16.50	13.99	48.75, 1893; 0.50, 1937
Maximum precipitation in 24 hrs.	1.40, 21st, 22nd		
Number of days with .01 or more	12	10	15, '93, '20; 4, 1901
Wind, in miles			
Total movement	4277	4776	6445, 1896; 3438, 1892
Greatest daily movement	351, 2nd		
Least daily movement	24, 10th		
Mean hourly velocity	6.4	7.1	
Maximum velocity	32, 24th	31.7	48, 1934, 1937, 1944
Wind, direction			
Prevailing direction	W	WNW	
North, days	1		
Northeast, days	0		
East, days	2		
Southeast, days	4		
South, days	0		
Southwest, days	2		
West, days	11		
Northwest, days	8		
Weather			
Mean relative humidity, percent	67.5	66.6	
Mean cloudiness, percent	58	50.9	66, '90, '27; 31, 1905
Number of clear days	12	10	19, 1941; 2, 1927
Number of fair days	6	8	16, 1920; 2, 1936
Number of cloudy days	10	10	16, 1894; 2, 1920
Number hours bright sunshine	171	158	221, 1924; 110, '27, '38
Percent of possible hours of bright sunshine	57.8	53.4	
Thunder and lightning	—		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1944.

REMARKS

The weather during February was warmer than normal with a mean temperature of 25.7 degrees. The normal for February is 23.7 degrees. It was quite cold during the first week of the month, about normal for two weeks, and then warmer than normal during the last week. The mean temperature for the three winter months of December, January, and February was 22.9 degrees while the normal for that period is 25.1 degrees. The domestic heating load for the month was 1100 degree-days, making the total for the season 5170 degree-days. The normal for February is 1165 degree-days and for the season to the end of February the normal is 4982 degree-days. The heating load to the end of February is therefore about 4 percent higher than normal. The snowfall during the month was 16.50 inches compared to a normal of 13.99 inches. The snowfall for the winter is now 50.00 inches, the normal for the period being 38.15 inches. The total precipitation for the month was 3.33 inches. The normal for February is 3.19 inches.

There were 171 hours of bright sunshine, the normal being 158 hours. Total wind movement was 4277 miles while the normal wind travel for February is 4776 miles. The maximum wind velocity was 32 miles per hour on the 24th. The prevailing direction was west. Mean relative humidity was 67.5 percent, the normal being 66.6 percent.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 675 March 1945

Meteorological Observations

FOR

MARCH

1945

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	47	2 P	25	7 A	36.0	44	11.2	nw	111	13	12:30 A	2:30 A	.05	.50
2	51	4 P	28	5 A	39.5	60	4.5	e	104	9				
3	54	3 P	36	3 A	45.0	83	2.0	se	124	22	4 A	8 A	.07	
4	43	3 P	27	12 P	35.0	41	11.4	w	208	28				
5	44	4 P	15	8 A	29.5	65	11.4	n	102	15				
6	44	4 P	34	2 A	39.0	95	1.0	e	86	11	5 A	11:30 P	.45	
7	42	3 P	26	12 P	34.0	56	11.5	nw	213	18	12:30 A	1 A	.01	
8	43	3 P	18	7 A	30.5	48	11.6	nw	83	8				
9	46	3 P	22	7 A	34.0	59	11.6	w	59	12				
10	40	1 P	28	7 A	34.0	81	1.8	nw	22	4	6 P	7 P	.04	
11	44	4 P	23	7 A	33.5	48	11.7	nw	149	20				
12	39	1 P	21	6 A	30.0	81	0.0	se	175	18	2:30 P	10 P	.32	1.00
13	50	4 P	30	6 A	40.0	57	11.8	w	147	25				
14	59	3 P	26	7 A	42.5	51	11.0	se	117	17				
15	71	4 P	35	7 A	53.0	78	8.9	se	97	6				
16	51	4 P	37	7 A	44.0	91	0.0	nw	31	6			T	
17	68	3 P	36	7 A	52.0	79	6.2	se	62	13				
18	66	3 P	37	0 A	51.5	45	12.0	w	174	18				
19	52	4 P	31	5 A	41.5	87	0.7	sw	43	8				
20	78	3 P	39	3 A	58.5	82	6.2	sw	83	17	7:30 P	8:30 P	.07	
21	51	0 A	37	12 P	44.0	94	0.0	n	127	18	3:30 A	10:30 P	.61	
22	37	0 A	33	8 P	35.0	83	0.0	nw	260	18	1 P	6:30 P	.21	1.00
23	46	4 P	31	7 A	38.5	72	5.1	w	296	22				
24	61	3 P	36	5 A	48.5	48	12.3	nw	256	32				
25	67	4 P	29	5 A	48.0	55	12.4	nw	98	14				
26	73	3 P	33	6 A	53.0	58	12.4	se	187	14				
27	77	1 P	35	6 A	56.0	79	5.1	se	86	28	3 P	11:30 P	.24	
28	84	3 P	44	7 A	64.0	75	8.2	se	99	17			T	
29	85	3 P	56	7 A	70.5	55	11.0	w	176	14				
30	68	3 P	52	10 P	60.0	54	12.6	nw	304	22				
31	61	4 P	49	5 A	55.0	87	0.4	e	90	12	8 A	9 P	.09	

*Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

March, 1945		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.37, 5th	30.57	31.05, 1943
Minimum	29.45, 31st	29.24	28.47, 1914
Mean semi-daily	30.001	30.00	
Range	0.92	1.34	2.10, 1914; 0.85, 1915
Air Temperature, in degrees F.			
Highest	85, 29th	63.8	79.5, 1907, 1921
Lowest	15, 5th	6.1	–7.5, 1906
Mean	44.4	34.4	
Range	70	57.6	
Highest mean daily	70.5, 29th		
Lowest mean daily	29.5, 5th		
Mean maximum	56.2	43.2	
Mean minimum	32.6	25.4	
Greatest daily range	42, 27th		
Least daily range	4, 22nd		
Precipitation, in inches			
Precipitation	2.16	3.70	7.89, 1942; 0.12, 1915
Snow	2.50	7.47	27, 1899; 0, 1921
Maximum precipitation in 24 hrs.	.45, 6th		
Number of days with .01 or more	11	11	17, 1890, 1913, 1936; 3, 1915
Wind, in miles			
Total movement	4169	5944	8182, 1896; 3006, 1905
Greatest daily movement	304, 30th		
Least daily movement	22, 10th		
Mean hourly velocity	5.6	7.7	
Maximum velocity	32, 24th	31.2	48, 1932, 1939, 1941, 1942
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	2		
Northeast, days	0		
East, days	3		
Southeast, days	8		
South, days	0		
Southwest, days	2		
West, days	6		
Northwest, days	10		
Weather			
Mean relative humidity, percent	67.5	64.2	
Mean cloudiness, percent	53	51.8	68, 1901; 27, 1915
Number of clear days	17	11	22, 1924; 3, 1901
Number of fair days	5	10	17, 1900; 1, 1943
Number of cloudy days	9	10	21, 1901; 1, 1915
Number hours bright sunshine	226	199	292, 1924; 93, 1901
Percent of possible hours of bright sunshine	60.9	53.6	
Thunder and lightning	—		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1944.

REMARKS

Weather during March was abnormally warm, with less rain and snow than usual. The mean temperature during the month was 44.4 degrees, while the normal mean temperature for March is 34.4 degrees. This is the highest mean temperature ever recorded for March at Amherst since 1837. The maximum temperature of 85 degrees on March 29 is the highest reading ever recorded in March. The heating load during the month was 645 degree-days, the normal being 950 degree-days. The heating load for the season is now 5815 degree-days whereas the normal for that period is 5932 degree-days.

A total of 2.50 inches of snow fell during the month and the total precipitation was 2.16 inches. Normally we get 7.47 inches of snow in March with a total precipitation of 3.70 inches. The total snowfall for the winter to the end of March is 52.50 inches, the normal being 47.78 inches. There were 226 hours of bright sunshine, the normal for March being 199 hours.

Dr. J. K. Shaw, research pomologist, gives the following report: "While the past winter was colder than the average, there were no severe minima, and peach fruit buds survived the winter in numbers sufficient for a good crop. The heavy covering of snow protected low-growing plants and the ground thawed from below so that there was little frost in the ground when the snow cover melted. This took place in March with unusual rapidity but with no high river floods. The extremely high temperatures in March have advanced vegetation so that it is about as far along as it was a month later last year. Grass is green and leaves are developing on many shrubs. Forsythia is in full bloom at the last of the month. It is, so far, the earliest spring in many years.

"We cannot expect this unseasonably warm weather to continue. We usually get temperatures in April low enough to cause severe injury to vegetation when it is advanced as far as it is at the end of March. While a light frost would not now do great damage, temperatures in the low twenties would cause great injury. Last year the low temperatures in April brought about a situation indicating little danger from spring frosts. Warm weather of early May advanced vegetation very rapidly, apple trees blossomed a day or two earlier than the average, and a disastrous frost occurred on the morning of May 19. This year conditions are reversed and damaging spring frosts are probable. We can only hope that luck will change this year and that we may have cooler weather in April, slowing the progress of vegetation, but without minima low enough to cause injury."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 676 April 1945

Meteorological Observations

FOR

APRIL

1945

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

MONTHLY SUMMARY

April, 1945		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.69, 7th	30.48	30.71, 1911
Minimum	29.57, 27th	29.38	28.98, 1943
Mean semi-daily	30.050	29.99	
Range	1.12	1.11	1.52, 1930; .72, 1919
Air Temperature, in degrees F.			
Highest	86, 13th	79.4	90, 1941
Lowest	26, 23rd	22.0	8.5, 1923
Mean	51.8	45.7	52, 1921; 41, 1943
Range	60	57.4	
Highest mean daily	70, 13th		
Lowest mean daily	41, 5th, 6th, 23rd		
Mean maximum	63.6	56.8	
Mean minimum	40.0	34.8	
Greatest daily range	44, 10th		
Least daily range	9, 2nd, 4th		
Precipitation, in inches			
Precipitation	5.43	3.35	6.89, 1929; .55, 1941
Snow	—	2.17	11, 1891; 0, 1910, 1934
Maximum precipitation in 24 hrs.	2.83, 25th		
Number of days with .01 or more	9	11	18, 1909; 3, 1892
Wind, in miles			
Total movement	5369	5404	8208, 1908; 3853, 1917
Greatest daily movement	484, 22nd		
Least daily movement	70, 30th		
Mean hourly velocity	7.5	7.5	
Maximum velocity	40, 5th	31.4	40, 1935, 1938, 1940
Wind, direction			
Prevailing direction	SW	WNW	
North, days	0		
Northeast, days	0		
East, days	1		
Southeast, days	13		
South, days	0		
Southwest, days	0		
West, days	8		
Northwest, days	8		
Weather			
Mean relative humidity, percent	67.6	61.6	
Mean cloudiness, percent	56	51.8	75, 1901; 34, 1925, 1927
Number of clear days	16	11	23, 1941; 3, 1898, 1902
Number of fair days	8	9	18, 1915; 2, 1894, 1901
Number of cloudy days	6	10	22, 1901; 1, 1941
Number hours bright sunshine	258	220	329, 1941; 103, 1901
Percent of possible hours of bright sunshine	64.2	54.7	
Thunder and lightning	—		
Last snow	March 22	Apr. 15	Mar. 14, 1910; May 11, 1907

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1944.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	71	4 P	45	5 A	58.0	53	12.7	w	313	28				
2	61	6 P	52	5 A	56.5	84	0.0	se	189	15	9 A	12 P	.41	
3	69	3 P	48	12 P	58.5	73	11.7	nw	211	28				
4	48	0 A	39	12 P	43.5	87	0.0	e	197	14	8:30 P	12 P	.06	
5	49	6 P	33	12 P	41.0	77	4.5	w	272	40	0 A	12 M	1.13	
6	51	6 P	31	3 A	41.0	44	13.0	w	366	20				
7	61	2 P	27	7 A	44.0	57	13.0	se	187	28				
8	71	3 P	36	7 A	53.5	66	13.0	se	166	13				
9	76	4 P	35	6 A	55.5	66	13.1	se	80	7				
10	81	4 P	37	7 A	59.0	65	13.1	se	82	11				
11	80	5 P	47	7 A	63.5	79	8.5	se	92	10				
12	82	4 P	56	6 A	69.0	77	8.0	se	118	12				
13	86	4 P	54	6 A	70.0	80	9.0	se	105	14				
14	75	2 P	49	12 P	62.0	55	10.7	w	222	25				
15	57	4 P	36	6 A	46.5	46	13.3	nw	154	11				
16	53	11 A	36	1 A	44.5	64	1.9	se	113	11				
17	67	5 P	44	5 A	55.5	96	0.0	se	132	17	1:30 A	12 P	.50	
18	67	3 P	42	12 P	54.5	50	12.6	w	179	32				
19	52	5 P	35	12 P	43.5	51	13.5	w	275	32				
20	63	1 P	34	5 A	48.5	64	7.0	se	185	20				
21	63	3 P	38	5 A	50.5	70	10.0	se	79	17	4:30 P	7:30 P	.26	
22	48	5 P	38	12 P	43.0	54	9.9	nw	484	32				
23	56	6 P	26	5 A	41.0	42	13.7	nw	119	13				
24	62	3 P	30	5 A	46.0	61	6.9	se	72	9				
25	55	12 M	42	11 P	48.5	93	0.0	nw	83	9	12:30 P	11:30 P	2.83	
26	68	3 P	43	0 A	55.5	79	12.4	nw	224	17	9 P	12 P	.05	
27	57	12 M	41	8 P	49.0	76	0.5	w	178	28	0 A	7 A	.06	
28	57	4 P	39	5 A	48.0	63	12.0	nw	332	25				
29	61	1 P	40	5 A	50.5	76	7.0	nw	90	9				
30	60	3 P	45	6 A	52.5	81	7.0	w	70	13	5:30 A	12 P	.13	
31														

*Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

REMARKS

The warm weather which started in March continued through the first half of April but the latter half of the month has been near normal. The mean temperature for the month, however, was 51.8 degrees which is 6.8 degrees higher than normal. The high mean temperature of 51.8 degrees has been exceeded only once in April since 1889; that was in 1941 when the mean was 52.1 degrees. The highest temperature was 86 degrees on the 13th. The lowest temperature was 26 degrees on the 23rd, causing general damage to the fruit crop.

The domestic heating load was 406 degree-days compared to a normal of 579 degree-days. The heating load for the season to the end of April is 6221 degree-days, the normal for that period being 6511 degree-days.

The rainfall during the month was 5.43 inches with no snow. The normal precipitation for April is 3.35 inches with 2.17 inches of snow. There were 258 hours of bright sunshine which is 38 hours more than normal.

Dr. J. K. Shaw makes the following report on the progress of vegetation: "The fear of cold injury expressed last month proved well founded. Temperatures appropriate to March came along in April and there has been severe damage to fruit crops. Apple bloom was not as heavy as expected but there was enough for a good crop. We had a narrow escape on April 6 and 7 when temperatures approached the danger point but caused little if any injury. Then on the morning of April 23 there was severe and widespread damage. There was less difference in orchards on different elevations than there was from the freeze of May 19, 1944. Injury was more general and more severe. From 80 to 90 percent of the flowers on all tree fruits in our orchards were killed. This seems to include all that were open at the time. Some of the unopened buds were killed and others survive. Ordinarily such buds do not produce much good fruit but being relieved of the competition from the earlier opening flowers they may mature good fruits. The continued low temperatures that prevailed through April are unfavorable to bee flight and to fertilization of the blossoms. From one to three weeks must pass before we can tell how many of these flowers will produce fruits. The little embryonic peaches have not swelled following bloom as they usually do. This may be only a delay due to continued cold weather or they may be ruined. In some parts of this state more injury is reported to have occurred on April 24 but in Amherst the temperature was about 4° higher and little if any additional injury took place. Apparently in Amherst orchards as much or more than in any other section of the state there is still a danger period of 2 or 3 weeks ahead of us.

"Open strawberry flowers were killed but these were too few to materially affect the crop. No distinct injury to bush fruits and grapes has yet been determined.

"The apple blossom period was the earliest and most prolonged of any in the past 40 or more years and fully three weeks ahead of normal. Last year the blooming period of all tree fruits lasted scarcely over a week; this year it has continued for nearly a month and some apple blossoms had not opened at the end of April.

"Two successive years of cold damage to fruits has never before occurred in Massachusetts within the memory of the present generation. There may be a good many bushels of apples and other tree fruits in Massachusetts in 1945 but the crop must be reduced 50 percent and probably more—perhaps much more."

AGRICULTURAL BRANCH LIBRAR
BLACKSBURG, VIRGINIA

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 677 May 1945

Meteorological Observations

FOR

MAY

1945

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	52	4 P	43	12 P	47.5	96	0.0	e	97	15	7 A	11 :30 A	.25	
2	60	3 P	38	5 A	49.0	77	6.0	se	66	9	4 P	5 P	.04	
3	60	1 P	42	6 A	51.0	83	6.3	e	133	18	5 :30 P	12 P	.50	
4	48	2 P	42	0 A	45.0	97	0.0	nw	162	14	1 :30 A	9 P	.58	
5	63	1 P	46	0 A	54.5	72	7.9	se	152	18				
6	61	1 P	39	5 A	50.0	79	8.8	w	120	15	2 P	3 P	.04	
7	68	4 P	40	5 A	54.0	66	14.2	se	47	8				
8	60	2 P	41	6 A	50.5	74	2.2	se	88	18	1 P	3 :30 P	.25	
9	58	3 P	39	12 P	48.5	49	13.5	w	206	22				
10	46	11 A	36	3 P	41.0	86	0.0	nw	79	15	11 :30 A	12 P	1.07	.75
11	55	5 P	31	1 A	43.0	57	10.1	nw	341	32	0 A	6 A	.46	.25
12	66	3 P	39	3 A	52.5	53	7.7	se	89	10				
13	61	1 P	48	12 P	54.5	86	1.5	nw	62	20	1 P	6 P	.54	
14	77	3 P	41	5 A	59.0	59	11.8	w	88	12				
15	80	3 P	51	4 A	65.5	77	10.7	se	175	18	8 P	12 P	.61	
16	64	3 P	51	6 A	57.5	85	4.6	nw	86	12	0 A	12 :30 A	.10	
17	66	12 P	52	5 A	59.0	95	1.1	w	42	6	7 P	12 P	.14	
18	70	4 P	56	11 P	63.0	97	2.8	se	92	10	1 :30 A	4 :30 P	1.04	
19	58	2 A	45	12 P	51.5	92	0.0	nw	145	18	8 A	5 P	.35	
20	71	5 P	36	5 A	53.5	52	0.0	n	125	17				
21	71	3 P	46	3 A	58.5	75	3.7	se	95	12				
22	80	3 P	50	3 A	65.0	85	6.8	s	124	17	11 :30 P	12 P	.05	
23	63	11 A	46	12 P	54.5	61	6.5	w	358	22	0 A	1 A	.04	
24	65	4 P	40	5 A	52.5	54	12.5	w	167	18				
25	72	7 P	37	5 A	54.5	64	7.5	se	65	8				
26	81	2 P	41	5 A	61.0	59	13.5	se	71	7				
27	60	4 P	48	5 A	54.0	92	0.0	se	57	8	9 :30 A	12 :30 P	.06	
28	64	2 P	45	1 A	54.5	89	0.0	se	140	17	1 A	9 P	.14	
29	74	5 P	56	12 P	65.0	58	8.8	nw	215	17	0 A	1 :30 A	.06	
30	64	1 P	48	11 P	56.0	52	9.5	w	301	25	1 A	4 :30 A	.13	
31	60	3 P	42	12 P	51.0	48	12.0	w	391	35				

*Based on least time required to blow one mile.

Fernand E. Bartlett, *Observer*

MONTHLY SUMMARY

May 1945		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.35, 27th	30.39	30.62, 1936
Minimum	29.30, 10th	29.51	29.10, 1938
Mean semi-daily	29.888	29.96	
Range	1.05	0.88	
Air Temperature, in degrees F.			
Highest	81, 26th	86.1	94.5, 1896, 1911
Lowest	31, 11th	31.2	24.0, 1900
Mean	54.1	57.1	
Range	50	54.9	
Highest mean daily	65.5, 15th		
Lowest mean daily	41, 10th		
Mean maximum	64.5		
Mean minimum	43.7		
Greatest daily range	40, 26th		
Least daily range	6, 4th		
Precipitation, in inches			
Precipitation	6.45	3.60	7.44, 1931; .48, 1903
Snow	1.00		
Maximum precipitation in 24 hrs.	1.53, 10th, 11th		
Number of days with .01 or more	20	12	20, 1901; 5, 1903
Wind, in miles			
Total movement	4379	4504	5946, 1907; 2180, 1894
Greatest daily movement	391, 31st		
Least daily movement	42, 17th		
Mean hourly velocity	5.9	6.1	
Maximum velocity	35, 31st	28.8	45, 1935
Wind, direction			
Prevailing direction	SSW	W	
North, days	1		
Northeast, days	0		
East, days	2		
Southeast, days	12		
South, days	1		
Southwest, days	0		
West, days	8		
Northwest, days	7		
Weather			
Mean relative humidity, percent	73.2	60.7	
Mean cloudiness, percent	65	52.1	70, 1901, 1902; 30, 1923
Number of clear days	8	11	21, 1944; 0, 1927
Number of fair days	11	11	17, 1907, 1926; 5, 1923
Number of cloudy days	12	9	20, 1927; 2, 194[illegible]
Number hours bright sunshine	190	252	350, 1944; 137, 1927
Percent of possible hours of bright sunshine	41.9	55.6	
Thunder and lightning	22nd		
Last snow	May 11		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1944.

REMARKS

The weather during May was cold and wet, delaying planting and in general producing a late spring in spite of the warm weather in late March and early April. The mean temperature for May was 54.1 degrees, the normal mean being 57.1 degrees. This is the coldest May since 1927 and in only five years has there been a colder May since this station was established in 1889. The lowest temperature was 31 degrees on the 11th. This was the last frost at the observatory although there were frosts on low ground in Amherst on the 25th. The heating load for May was 338 degree-days, the normal being 267 degree-days. The total heating load for the season is now 6559 degree-days, the normal to the end of May being 6778 degree-days.

The rainfall for the month was 6.45 inches compared to a normal of 3.60 inches. Rain fell on 20 days during the month. This heavy rainfall in May has been exceeded only twice since 1889, the last being in 1931 when 7.44 inches fell. An inch of snow fell on the 10th and 11th. There were 190 hours of bright sunshine, the normal for May being 252 hours.

Dr. J. K. Shaw reports on the progress of vegetation as follows: "The weather during May continued cool with an excess of rainfall. These conditions assure a good hay crop but were not very favorable for fruit. Yet the blossoms not killed by the April freeze set rather well so that a small and spotty crop is in sight. Prospects are better than was feared a month ago. Plums are very light but pears and peaches seem to have set good crops. The apple crop over the state is variable, some orchards having a good prospect of a crop and in others a total failure is indicated. Of course, many orchards are between these extremes. The common estimate of half a crop seems reasonable. Frequent rainy periods have favored apple scab infection so that orchards not thoroughly sprayed may produce many scabby apples. Those well sprayed at proper times are quite free from scab. While frost killed the very early strawberry blossoms, conditions so far have favored a good crop from the limited plantings made last year. The soil is now well supplied with moisture, and if dry, sunny weather prevails during the ripening period, a good crop should be harvested. The month closes with a cold night, reminding us that it is still possible to have further frost injury."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 678 June 1945

Meteorological Observations

FOR

JUNE

1945

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

MONTHLY SUMMARY

JUNE, 1945		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.16, 15th	30.30	30.54, 1889
Minimum	29.64, 3rd	29.55	29.24, 1902
Mean semi-daily	29.942	29.95	
Range	0.52	0.75	
Air Temperature, in degrees F.			
Highest	92, 15th, 30th	91.2	101, 1919
Lowest	37, 1st, 7th	40.0	34, 1891
Mean	66.1	65.7	
Range	55	51.3	
Highest mean daily	80, 30th		
Lowest mean daily	50, 2nd		
Mean maximum	77.3		
Mean minimum	54.8		
Greatest daily range	33, 7th		
Least daily range	7, 19th		
Precipitation, in inches			
Precipitation	7.67	3.75	9.68, 1922; 0.76, 1908
Snow	—		
Maximum precipitation in 24 hrs.	2.25, 17th		
Number of days with .01 or more	17	11	17, 1922; 4, 1908
Wind, in miles			
Total movement	2805	3585	4571, 1908; 1409, 1906
Greatest daily movement	279, 27th		
Least daily movement	30, 13th		
Mean hourly velocity	3.9	5.0	
Maximum velocity	32, 15th	24.6	48, 1939
Wind, direction			
Prevailing direction	NNW	WSW	
North, days	5		
Northeast, days	0		
East, days	4		
Southeast, days	6		
South, days	2		
Southwest, days	1		
West, days	3		
Northwest, days	9		
Weather			
Mean relative humidity, percent	74.5	66.9	
Mean cloudiness, percent	58	51.1	71, 1903; 28, 1908
Number of clear days	8	10	22, 1908, 1941, 1943; 1, 1927
Number of fair days	15	12	23, 1912; 3, 1941
Number of cloudy days	7	8	22, 1903; 1, 1923
Number hours bright sunshine	242	257	362, 1908; 102, 1903
Percent of possible hours of bright sunshine	53	54.0	
Thunder and lightning	11th, 15th, 17th, 18th, 25th, 26th		
Last frost	April 24		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1944.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	64	5 P	37	5 A	50.5	46	10.0	w	241	22				
2	61	12 M	39	0 A	50.0	71	3.0	n	41	5	3:30 P	5 P	.06	
3	57	2 P	46	8 A	51.5	89	3.1	n	68	10	6 A	8 A	.08	
4	62	1 P	46	6 A	54.0	64	4.3	e	71	11				
5	57	3 P	44	5 A	50.5	88	5.0	n	110	12	1 A	10:30 P	.22	
6	65	5 P	45	5 A	55.0	67	9.0	nw	109	20	0 A	2 A	.05	
7	70	2 P	37	5 A	53.5	58	9.3	nw	86	17				
8	72	3 P	43	5 A	57.5	64	12.6	n	77	22				
9	78	1 P	46	5 A	62.0	64	7.2	se	40	6				
10	67	2 P	55	5 A	61.0	88	1.0	se	79	9	12:30 P	12 P	.21	
11	81	3 P	59	0 A	70.0	98	6.6	e	113	18	0 A	8 P	.68	
12	81	3 P	58	12 P	69.5	67	13.0	n	89	13	1 A	1:30 A	.01	
13	78	5 P	52	5 A	65.0	76	9.0	w	30	5	12:30 A	1 P	.01	
14	90	1 P	58	5 A	74.0	82	10.6	se	54	7				
15	92	11 A	64	5 A	78.0	85	6.0	se	106	32	1 P	12 P	1.85	
16	87	6 P	66	0 A	76.5	86	7.2	e	37	11	5 A	6 A	.13	
17	88	1 P	67	7 A	77.5	85	8.5	sw	93	12	1:30 A	10 P	2.25	
18	88	2 P	67	12 P	77.5	85	5.0	se	91	17	8:30 P	9 P	.22	
19	72	5 P	65	12 P	68.5	89	2.1	nw	58	18	7:30 P	12 P	.09	
20	75	7 P	58	6 A	66.5	87	6.7	nw	125	20	0 A	8 A	.73	
21	79	3 P	52	5 A	65.5	85	8.5	s	79	20	6:30 P	10 P	.58	
22	82	5 P	60	5 A	71.0	65	15.3	nw	81	12				
23	84	5 P	56	3 A	70.0	54	14.0	nw	181	22				
24	84	5 P	54	5 A	69.0	64	9.2	s	55	7	6 P	6:30 P	.04	
25	90	3 P	62	5 A	76.0	72	12.0	se	87	8				
26	72	0 A	58	12 P	65.0	88	0.0	nw	141	14	0 A	4 P	.46	
27	79	4 P	59	5 A	69.0	65	11.6	nw	279	22			T	
28	86	4 P	61	5 A	73.5	64	10.0	w	45	4				
29	89	2 P	63	5 A	76.0	72	9.6	e	50	22				
30	92	3 P	68	5 A	80.0	66	12.6	nw	89	17				
31														

*Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

REMARKS

The outstanding feature of June weather was the excessive rainfall. Rain fell on 17 days with a total of 7.67 inches. This rainfall for June has been exceeded only three times since the station was established in 1889: In June 1903 with a rainfall of 7.79 inches, in 1922 with 9.68 inches, and in 1938 with 8.45 inches. Only once was this June rainfall exceeded during the period from 1836 to 1888. In 1862 the June rainfall in Amherst was 11.69 inches. The normal rainfall for June is 3.75 inches. The normal total rainfall for April, May and June is 10.70 inches. This year the rainfall for these three months is 19.55 inches. This has never been reached since records have been taken since 1836. Normally rain falls on 34 days during the three spring months. This year rain fell on 46 days.

The mean temperature for the month was 66.1 degrees, the normal being 65.7 degrees. The highest temperature was 92 degrees on the 15th and 30th. The lowest temperature was 37 degrees on the 1st and 7th. The heating load during the month was 105 degree-days compared to a normal of 68 degree-days. This brings the total heating load for the season to 6664 degree-days, the normal being 6846 degree-days. The heating load for the season was therefore slightly less than 3 percent below normal. There were 242 hours of bright sunshine compared to a normal of 257 hours.

Dr. J. K. Shaw makes the following statement: "Excessive rainfall continued through June but with a change to hot, humid weather. The hay crop is heavy but frequent rains have delayed harvest and injured quality. Peaches and pears have set a good crop, but a severe local hailstorm on the afternoon of June 15 caused injury and broke a large percentage of our greenhouse glass, although there was little or no hail damage a mile or two away. The strawberry crop was good but suffered from rot because of wet weather. The raspberry crop will be good but blueberries will be short. Some varieties of apples set well from late bloom in spite of April freezes but, in our own orchards, suffered from hail damage. McIntosh, our main variety, failed to set well from the uninjured blossoms and the crop will be very small. Few of our mature trees will yield a bushel each. The apple crop in this vicinity will be the smallest in many years and of poor quality because of scab, frost russeting, and, in our own orchards, hail damage. Last month's estimate of half a crop was over optimistic, largely because of a poor set of McIntosh. Present indications suggest a quarter of a crop is a more reasonable expectation."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 679 July, 1945

Meteorological Observations

FOR

JULY

1945

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean									
	Degrees	Time	Degrees	Time				Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	92	2 P	63	5 A	77.5	73	12.3	se	76	28	3:30 P	4 P	.58	
2	82	1 A	60	12 P	71.0	80	5.0	s	47	13	4 P	9:30 P	.26	
3	77	4 P	53	12 P	65.0	62	15.2	nw	168	20				
4	79	2 P	50	5 A	64.5	65	14.2	se	87	11				
5	84	3 P	60	5 A	72.0	69	11.7	se	146	13				
6	83	1 P	58	12 P	70.5	66	9.0	nw	145	25	1 A	2:30 P	.34	
7	81	4 P	52	4 A	66.5	61	15.0	w	90	18				
8	83	3 P	55	2 A	69.0	61	14.0	se	74	12				
9	86	2 P	57	3 A	71.5	76	9.0	s	112	13	8:30 P	9:30 P	.04	
10	79	1 P	56	12 P	67.5	84	5.2	se	200	17	2 P	3:30 P	1.24	
11	69	5 P	51	3 A	60.0	49	14.0	w	222	22				
12	76	4 P	46	5 A	61.0	53	13.5	se	101	10				
13	77	4 P	56	5 A	66.5	67	10.0	se	162	14				
14	82	2 P	61	7 A	71.5	76	9.5	se	116	12	11:30 P	12 P	.13	
15	76	11 A	68	12 P	72.0	89	0.0	se	227	18	0 A	7 P	1.72	
16	79	5 P	64	12 P	71.5	81	8.0	nw	94	6				
17	75	1 P	61	5 A	68.0	77	4.3	nw	56	6	9:30 P	11:30 P	.06	
18	83	1 P	66	6 A	74.5	82	8.0	se	75	8	1:30 A	6 A	.69	
19	80	11 A	70	9 P	75.0	86	3.3	se	93	9	9 A	6 P	.11	
20	80	5 P	69	0 A	74.5	86	6.0	se	115	12	11 A	12 M	.03	
21	85	2 P	69	4 A	77.0	69	10.0	nw	121	10				
22	78	11 A	66	12 P	72.0	76	2.0	e	71	13	4:30 P	6:30 P	.27	
23	81	4 P	64	3 A	72.5	72	10.0	se	47	6	4 A	6 A	.01	
24	79	5 P	64	5 A	71.5	82	9.0	e	59	5				
25	87	2 P	65	2 A	76.0	79	7.0	se	108	9				
26	88	1 P	68	12 P	78.0	73	9.2	nw	95	10	6 A	6:30 A	.04	
27	81	3 P	57	12 P	69.0	57	10.0	e	123	10				
28	77	2 P	53	4 A	65.0	75	7.0	e	46	5	6:30 P	12 P	.91	
29	77	5 P	65	8 A	71.0	89	3.8	nw	64	5	0 A	12 P	.93	
30	84	3 P	66	6 A	75.0	76	10.9	se	53	6				
31	81	4 P	63	12 P	72.0	76	8.9	e	77	7				

*Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

July, 1945		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.37, 17th	30.27	30.50, 1892
Minimum	29.67, 10th	29.59	29.27, 1932
Mean semi-daily	30.024	29.96	
Range	0.70	0.68	0.97, 1892; 0.47, 1938
Air Temperature, in degrees F.			
Highest	92, 1st	93.9	104, 1911
Lowest	46, 12th	46.4	40, 1890, 1898
Mean	70.6	70.8	74.7, 1921; 66.3, 1891
Range	46	47.7	
Highest mean daily	78, 26th		
Lowest mean daily	60, 11th		
Mean maximum	80.7		
Mean minimum	60.5		
Greatest daily range	30, 12th		
Least daily range	8, 15th		
Precipitation, in inches			
Precipitation	7.36	4.10	14.51, 1897; 0.70, 1929
Snow	—		
Maximum precipitation in 24 hrs.	1.85, 14th, 15th		
Number of days with .01 or more	16	11	20, 1915; 4, 1924
Wind, in miles			
Total movement	3270	3422	5097, 1909; 1109, 1894
Greatest daily movement	227, 15th		
Least daily movement	46, 28th		
Mean hourly velocity	4.4	4.6	
Maximum velocity	28, 1st	28.7	44, 1936
Wind, direction			
Prevailing direction	SE	SW	
North, days	0		
Northeast, days	0		
East, days	5		
Southeast, days	15		
South, days	2		
Southwest, days	0		
West, days	2		
Northwest, days	7		
Weather			
Mean relative humidity, percent	73.1	68.4	
Mean cloudiness, percent	60	50.9	70, 1943; 31, 1924
Number of clear days	9	10	22, 1923; 0, 1915
Number of fair days	17	14	24, '09, '21; 5, '89, '23, '28, '36
Number of cloudy days	5	7	18, 1889; 0, 1910
Number hours bright sunshine	275	268	371, 1910; 180, 1931
Percent of possible hours of bright sunshine	59.5	58	
Thunder and lightning	1st, 6th, 10th, 18th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1944.

REMARKS

The outstanding feature of July weather was the continuation of the heavy rainfall which started in April. Rain fell on 16 days in July and the total was 7.36 inches as compared to a normal of 4.10 inches. This heavy rainfall has been exceeded only three times in July since 1889: 10.52 inches fell in 1889; 14.51 in 1897, and 9.13 in 1915. Much of the rain occurred as heavy showers. The total rainfall since April 1 is now 26.91 inches, the normal for this period being 14.80 inches. The heavy rainfall has been disastrous for many crops and has made haying particularly difficult.

The mean temperature for the month was 70.6 degrees which is only 0.2 of a degree less than normal. In spite of the frequent rains, we had 275 hours of bright sunshine while the normal for July is 268 hours. There were no high winds and the average humidity was 73.1 percent.

Professor J. S. Bailey of the Department of Pomology makes the following comments: "July has been another month of hot, humid weather and excessive rainfall. A prospective good raspberry crop turned out to be very light because so many berries became too soft or molded on the bushes. The blueberry crop, both cultivated and wild, has been cut heavily by mummy berry disease. Apple scab has been the worst in years. McIntosh orchards that were not frequently and thoroughly sprayed are heavily infected. Scab carry-over for next year will be heavy.

"Light crops and abundant water have resulted in rapid sizing of fruit with prospects of many oversized apples of poor keeping quality. Several very heavy rains have increased the difficulty of insect control by washing off arsenical sprays. Severe erosion during the heavy rains re-emphasizes the need for erosion control in many places. Late blight of potatoes appeared early and is very severe in many Connecticut Valley fields. Many other diseases of both fruits and vegetables have been unusually severe."

MASS.STATE COLLEGE
AMHERST,MASS.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 680 August, 1945

Meteorological Observations

FOR

AUGUST

1945

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	75	5 P	60	6 A	67.5	79	6.7	se	67	6				
2	81	2 P	64	5 A	72.5	71	8.5	se	81	9				
3	86	1 P	62	12 P	74.0	57	13.0	nw	170	18				
4	76	12 M	55	5 A	65.5	57	9.2	w	159	20				
5	78	4 P	50	5 A	64.0	60	13.0	w	139	17				
6	62	12 M	52	4 A	57.0	91	0.0	w	51	13	10 A	12 P	1.05	
7	67	5 P	58	5 A	62.5	87	0.8	nw	146	13				
8	80	4 P	57	5 A	68.5	74	8.7	nw	56	10				
9	80	12 M	57	5 A	68.5	70	9.7	sw	48	10	12:30P	1 P	.25	
10	84	2 P	53	5 A	68.5	78	6.1	sw	37	5				
11	88	3 P	56	6 A	72.0	72	14.0	w	40	3				
12	87	1 P	59	5 A	73.0	71	9.0	s	36	7				
13	85	3 P	66	5 A	75.5	72	10.1	se	120	7				
14	84	1 P	67	3 A	75.5	76	7.8	se	157	11				
15	81	2 P	57	12 P	69.0	71	5.0	nw	213	20				
16	77	4 P	47	5 A	62.0	62	12.9	se	58	7				
17	79	3 P	50	5 A	64.5	67	10.0	se	64	8				
18	82	3 P	52	5 A	67.0	71	13.8	s	60	5				
19	84	2 P	54	5 A	69.0	64	11.5	e	59	6				
20	87	3 P	53	5 A	70.0	69	11.0	se	51	5				
21	91	3 P	61	6 A	76.0	75	10.7	se	100	11				
22	85	3 P	66	12 P	75.5	64	12.2	nw	100	11				
23	75	3 P	58	12 P	66.5	66	7.0	nw	101	28				
24	69	11 A	52	12 P	60.5	95	0.0	nw	53	7	6:30 A	12 P	.91	
25	61	5 P	51	4 A	56.0	97	0.0	nw	88	8	0 A	8:30 P	.09	
26	70	12 M	57	3 A	63.5	77	5.0	w	121	18				
27	74	5 P	53	6 A	63.5	62	12.0	w	125	15				
28	84	4 P	51	4 A	67.5	63	8.9	se	90	10				
29	90	4 P	61	6 A	75.5	67	11.0	s	97	11				
30	84	4 P	62	4 A	73.0	82	8.9	w	53	11	6:30 A	7:30 A	.20	
31	86	1 P	62	6 A	74.0	84	6.5	s	37	8	6 A	9 P	.29	

*Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

August, 1945		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.27, 24th	30.32	30.50, 1934
Minimum	29.66, 26th	29.61	28.87, 1930
Mean semi-daily	30.004	30.00	
Range	0.61	0.71	
Air Temperature, in degrees F.			
Highest	91, 21st	91.6	100, 1918
Lowest	47, 16th	43.4	37, 1894, 1908
Mean	68.3	68.6	34, 1940
Range	44	48.1	
Highest mean daily	76, 21st		
Lowest mean daily	56, 25th		
Mean maximum	79.8		
Mean minimum	56.9		
Greatest daily range	34, 20th		
Least daily range	9, 7th		
Precipitation, in inches			
Precipitation	2.79	4.08	8.40, 1928; .31, 1894
Snow	—		
Maximum precipitation in 24 hrs.	1.05, 6th		
Number of days with .01 or more	6	11	16, 1892, 1933; 4, 1899
Wind, in miles			
Total movement	2777	3127	4,271, 1910; 1,920, 1894
Greatest daily movement	213, 15th		
Least daily movement	36, 12th		
Mean hourly velocity	3.7	4.2	40, 1941
Maximum velocity	28, 23rd	22.7	
Wind, direction			
Prevailing direction	SW	SW	
North, days	0		
Northeast, days	0		
East, days	1		
Southeast, days	9		
South, days	4		
Southwest, days	2		
West, days	7		
Northwest, days	8		
Weather			
Mean relative humidity, percent	72.6	70.2	
Mean cloudiness, percent	50	49.7	67, 1901; 27, 1923
Number of clear days	13	9	23, 1941; 0, 1915, 1929
Number of fair days	14	13	25, 1912; 3, 1939
Number of cloudy days	4	9	18, 1901, '28; 2, 1910, '23
Number hours bright sunshine	263	237	332, 1941; 152, 1915, 1929
Percent of possible hours of bright sunshine	61.3	55.2	
Thunder and lightning	30th, 31st		
First frost	—	Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1944.

REMARKS

The weather during August was near normal in most respects. The mean temperature was 68.3 degrees, the normal being 68.8 degrees. The rainfall was less than normal. The total rainfall was 2.79 inches, the normal being 4.08 inches. There were 263 hours of bright sunshine as compared to a normal of 237 hours. The mean relative humidity was 72.6 percent, the normal being 70.2 percent. There were no high winds.

The following report is given by Dr. J. K. Shaw: "The excessive rainfall which has prevailed since spring came to an end with August, but the soil is still well supplied with water and we can be quite sure that the summer of 1945 will be one with no injury from dry weather. Hot, humid periods interspersed with cool weather prevailed during the month. The weather has been bad for potatoes for the vines grew well during the wet weather and were unable to stand the hot, sunny weather which followed. Consequently, we may expect a poor crop in this vicinity.

"The apple crop will be the smallest in many years, and of very poor quality in the College orchards because of injury by hail. Apple scab is more prevalent than usual because of 'scab weather' and the fact that many growers did not spray as thoroughly as usual on account of the lack of a crop. The peach crop is good both here and over the whole country. Pears will make a fair crop but plums are few.

Plenty of rain insured a good second crop of hay, which should be plentiful next winter although much of it will be of poor quality owing to wet weather which delayed harvest."

Dr. A. B. Beaumont makes the following comments on clovers: "This has been one of the best 'clover' years observed by local agronomists. Tame and wild clovers have grown luxuriantly. Red and alsike clovers have been abundant in new hay seedings, and red clover has reappeared in many old mowings. The rowen crop now being harvested contains a high proportion of clovers. Wild white clover and the giant white cultivated clover (Ladino) have grown especially well in fertilized pastures. Sweet clover and rabbit-foot clover have been much in evidence along roadsides and in waste places. Abundant rains during the early part of the season are thought to have been responsible for the abundance of clovers this year."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 681 September 1945

Meteorological Observations

FOR

SEPTEMBER

1945

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	85	2 P	66	3 A	75.5	80	5.5	se	162	18				
2	73	12 M	58	12 P	65.5	83	2.0	n	125	14	0 A	10 A	.19	
3	75	3 P	52	12 P	63.5	63	12.0	nw	66	10				
4	76	3 P	45	6 A	60.5	71	10.6	w	34	12				
5	83	4 P	51	7 A	67.0	72	10.6	se	65	6				
6	87	3 P	57	7 A	72.0	73	9.0	e	63	5				
7	91	3 P	60	6 A	75.5	72	10.8	e	66	6				
8	91	3 P	58	6 A	74.5	77	9.3	se	47	6				
9	85	2 P	63	3 A	74.0	82	6.3	sw	100	13				
10	81	2 P	66	2 A	73.5	90	4.0	sw	66	9	1 A	7 P	.16	
11	76	1 P	68	12 P	72.0	87	0.7	sw	74	12	3:30 P	4:30 P	.20	
12	77	1 P	56	12 P	66.5	66	10.0	ne	98	12				
13	77	3 P	50	5 A	63.5	73	10.2	n	50	8				
14	66	11 A	57	5 A	61.5	95	0.1	n	32	5	8 A	10:30 P	.39	
15	74	6 A	61	12 P	67.5	89	0.0	s	121	14	2 A	9:30 A	1.97	
16	63	2 P	46	12 P	54.5	62	9.3	nw	142	18				
17	56	2 P	41	4 A	48.5	67	0.0	nw	105	7				
18	61	1 P	47	3 A	54.0	82	0.0	n	136	12	3 A	12 P	.19	
19	72	2 P	54	12 P	63.0	76	6.5	nw	150	14	12:30 A	4 A	.37	
20	63	3 P	53	6 A	58.0	81	0.0	se	88	9				
21	74	3 P	51	12 P	62.5	51	9.4	w	178	28				
22	67	3 P	42	5 A	54.5	61	10.7	n	136	17				
23	64	3 P	37	6 A	50.5	81	3.3	se	41	6				
24	71	5 P	56	0 A	63.5	86	0.0	s	117	9				
25	83	1 P	65	0 A	74.0	84	5.0	se	158	12				
26	78	1 P	66	12 P	72.0	78	6.0	nw	140	11				
27	72	2 P	48	7 A	60.0	76	6.7	w	43	5				
28	75	4 P	61	7 A	68.0	93	0.6	se	109	11				
29	81	11 A	67	7 A	74.0	81	4.6	nw	221	18	12 M	12:30 P	.10	
30	57	4 P	36	7 A	46.5	64	10.8	nw	185	20				

*Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

September, 1945		Normal	Extremes
Barometer, in inches **(Readings reduced to sea level)**			
Maximum	30.61, 30th	30.45	30.65, 1924
Minimum	29.69, 11th	29.57	28.41, 1938
Mean semi-daily	30.156	30.06	
Range	0.92	.88	1.99, 1938; .57, 1910
Air Temperature, in degrees F.			
Highest	91, 7th, 8th	87.7	97, 1895, 1929
Lowest	36, 30th	33.2	24.5, 1914
Mean	64.6	61.7	
Range	55	54.5	
Highest mean daily	75.5, 1st, 7th		
Lowest mean daily	46.5, 30th		
Mean maximum	74.5		
Mean minimum	54.6		
Greatest daily range	33, 8th		
Least daily range	8, 11th		
Precipitation, in inches			
Precipitation	3.57	4.24	14.55, 1938; .52, 1914
Snow	—		
Maximum precipitation in 24 hrs.	1.97, 15th		
Number of days with .01 or more	8	10	16, 1933; 3, 1903
Wind, in miles			
Total movement	3118	3271	4,686, 1896; 1,414, 1894
Greatest daily movement	221, 29th		
Least daily movement	32, 14th		
Mean hourly velocity	4.3	4.5	
Maximum velocity	28, 21st	25.9	80, 1938
Wind, direction			
Prevailing direction	WNW	WSW	
North, days	5		
Northeast, days	1		
East, days	2		
Southeast, days	7		
South, days	2		
Southwest, days	3		
West, days	3		
Northwest, days	7		
Weather			
Mean relative humidity, percent	76.5	73.6	
Mean cloudiness, percent	54	49.9	70, 1934; 27, 1908, 1914
Number of clear days	10	10	19, 1932; 2, 1907, 1928
Number of fair days	10	10	19, 1908; 3, 1889
Number of cloudy days	10	10	20, 1934; 3, 1941
Number hours bright sunshine	174	201	255, 1916; 106, 1934
Percent of possible hours of bright sunshine	46.6	54.9	
Thunder and lightning	—		
First frost	—	Sept. 21	Oct. 13; Aug. 22

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1944.

REMARKS

The weather during the month of September was very pleasant, with higher temperatures than normal and slightly less rainfall. The total precipitation for the month was 3.57 inches, while the normal for September is 4.24 inches. The mean temperature was 64.6 degrees, the normal for September being 61.7 degrees. The highest temperature was 91 degrees on the 7th and 8th and the lowest, 36 degrees on the 30th. There has, therefore, been no frost in September this year. The normal date for the first frost is September 21st. The domestic heating load for the month was 110 degree-days compared to a normal of 149 degree-days. There were 174 hours of bright sunshine compared to a normal of 201 hours. There were no very high winds during the month, the highest being 28 miles per hour on the 21st.

Dr. J. K. Shaw makes the following comments: "Cool weather interspersed with hot, humid periods characterized the weather of September. The McIntosh apple harvest was completed. Not only was the crop the smallest in many years, but the quality was poor owing to unusual prevalence of scab in some orchards. Other later varieties are partially harvested. A few, mostly the later blooming varieties, will yield good crops, but the total crop in Massachusetts will not greatly exceed one-fourth of a normal crop. It will be less than that in this immediate vicinity. Probably the short McIntosh crop is due as much to cold, wet weather following bloom as to the spring frost during the remarkably early blooming period. These conditions interfered with adequate fertilization of the flowers. Enough McIntosh blossoms survived the frost to make a fair crop in many orchards if fertilization had been effective. Other tree fruits matured fair to good crops. The potato crop in this vicinity will be poor owing to the wet spring and unfavorable weather in August. The onion crop in the Valley is considerably below average."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 682 October 1945

Meteorological Observations

FOR

OCTOBER

1945

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	59	12 P	35	5 A	42.0	97	0.0	s	31	8	9:30 A	8:30 P	.35	
2	69	9 A	50	12 P	59.5	79	0.0	sw	244	20	2 A	1 P	.23	
3	50	0 A	30	12 P	40.0	48	9.0	w	336	39				
4	55	3 P	25	6 A	40.0	59	10.0	se	66	10				
5	67	3 P	34	5 A	55.5	70	8.7	se	119	11				
6	68	12 M	50	6 A	59.0	81	2.3	se	77	10	1 P	7 P	.07	
7	67	4 P	56	12 P	61.5	91	1.1	nw	54	11	5 P	5:30 P	.01	
8	75	3 P	48	7 A	61.5	59	9.7	se	121	14				
9	55	1 A	38	12 P	46.5	78	2.3	w	153	18	6:30 A	11 A	.63	
10	58	2 P	32	6 A	45.0	68	8.5	nw	46	8				
11	55	3 P	33	12 P	44.0	67	6.0	nw	54	5				
12	59	3 P	31	3 A	45.0	90	4.7	se	67	15	8 A	12 M	.17	
13	57	1 P	41	12 P	49.0	63	3.0	w	188	18				
14	49	1 P	32	6 A	40.5	84	1.0	nw	49	10				
15	50	2 P	32	1 A	41.0	72	4.8	nw	97	13				
16	51	5 P	37	12 P	44.0	77	0.0	s	127	22	5 P	5:30 P	.02	
17	65	3 P	28	7 A	46.5	70	7.2	se	84	11				
18	77	3 P	37	7 A	57.0	72	7.5	sw	50	5				
19	81	3 P	41	7 A	61.0	67	8.4	se	85	10				
20	68	3 P	44	12 P	56.0	67	9.4	w	141	15				
21	71	3 P	36	7 A	53.5	61	9.2	se	63	8				
22	73	2 P	41	5 A	57.0	81	4.4	se	136	17				
23	62	0 A	43	12 P	52.5	76	0.0	nw	187	17	10:30 P	12 P	.14	
24	48	3 P	40	6 A	44.0	83	0.0	nw	190	13	0 A	5 A	.25	
25	51	3 P	41	4 A	46.0	95	0.0	se	62	8	2 A	12 M	.25	
26	50	12 M	40	11 P	45.0	87	0.0	sw	66	18	1 P	4:30 P	.06	
27	50	2 P	38	1 A	44.0	57	5.4	w	302	32			T	
28	54	3 P	31	7 A	42.5	68	5.0	nw	120	18				
29	59	4 P	27	7 A	43.0	79	1.9	se	72	9				
30	64	2 P	45	7 A	54.5	59	7.3	se	68	9				
31	71	1 P	42	12 P	56.5	67	2.2	se	175	18			T	

*Based on least time required to blow one mile.

Fernand E. Bartlett, *Observer*

MONTHLY SUMMARY

October, 1945		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.54, 1st	30.53	30.68, 1929
Minimum	29.55, 2nd, 9th	29.42	29.00, 1926
Mean semi-daily	30.004	30.06	
Range	.99	1.11	1.47, 1926; .76, 1899
Air Temperature, in degrees F.			
Highest	81, 19th	79.4	90.5, 1908
Lowest	25, 4th	23.4	17, 1936
Mean	49.5	50.5	56.4, 1920; 43.2, 1890
Range	56	56.0	
Highest mean daily	61.5, 7th, 8th		
Lowest mean daily	40.0, 3rd, 4th		
Mean maximum	60.9		
Mean minimum	38.0		
Greatest daily range	40, 18th, 19th		
Least daily range	8, 24th		
Precipitation, in inches			
Precipitation	2.18	3.29	8.81, 1911; .01, 1924
Snow	—		
Maximum precipitation in 24 hrs.	.63, 9th		
Number of days with .01 or more	11	9	15, 1913; 1, 1897, 1924
Wind, in miles			
Total movement	3630	4074	5,467, 1910; 2,540, 1894
Greatest daily movement	336, 3rd		
Least daily movement	31, 1st		
Mean hourly velocity	4.9	5.4	
Maximum velocity	39, 3rd	29.5	42, 1937
Wind, direction			
Prevailing direction	SSW	W	
North, days	0		
Northeast, days	0		
East, days	0		
Southeast, days	13		
South, days	2		
Southwest, days	3		
West, days	5		
Northwest, days	8		
Weather			
Mean relative humidity, percent	73.3	69.0	
Mean cloudiness, percent	52	48	67, 1932; 18, 1924
Number of clear days	7	10	21, 1938; 1, 1911
Number of fair days	10	10	17, 1924; 3, 1938
Number of cloudy days	14	11	19, 1896; 3, 1924
Number hours bright sunshine	139	175.0	232, '23, '38; 91, 1913
Percent of possible hours of bright sunshine	40.8	51.3	
Thunder and lightning	12th		
First frost	Oct. 4	Sept. 21	Aug. 22, '94, '95; Oct. 15, '39

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1944.

REMARKS

The weather was near normal in most respects during October. The mean temperature for the month was 49.5 degrees, the normal for October being 50.5 degrees. The highest temperature was 81 degrees on the 19th. The lowest was 25 degrees on the 4th, which is the first frost of the season. The normal date for the first frost is September 21st. The heating load during October was 482 degree-days, the normal for October being 456 degree-days.

The total rainfall during the month was 2.18 inches. Normal precipitation for October is 3.29 inches. The total precipitation since January 1 to the end of October is 44.01 inches which is 7.10 inches above normal. There were only 139 hours of bright sunshine during the month compared to a normal of 175 hours. There were high winds on the 3rd and 27th, with a maximum of 39 miles per hour on the 3rd.

Dr. J. K. Shaw states: "The month of October concludes the crop season of 1945. The summer was unusual in some respects. It was unseasonably warm in March and early April. Then came cold nights with seriously damaging frosts and generally cool weather that counteracted the effect of the early warm weather. The season as a whole was wet, especially in May; there were few, if any, periods when crops or lawns suffered from drought. These conditions favored injury from many fungus diseases, but there was a bumper hay crop. Apple scab was prevalent because the spring frosts and ensuing cool weather resulted in the smallest apple crop in many years, and many growers thought it not worth while to spray their orchards.

"Conditions that injure some crops are favorable for others. On the whole, the season of 1945 was neither bad nor especially good."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 683 November 1945

Meteorological Observations

FOR

NOVEMBER

1945

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	54	4 P	31	11 P	42.5	63	8.7	nw	83	13				
2	58	2 P	32	6 A	45.0	81	0.7	se	60	12				
3	63	3 P	44	12 P	53.5	87	0.0	nw	103	18	5:30 P	6 P	.01	
4	44	0 A	38	7 P	41.0	86	0.0	nw	108	14	5 A	7 A	.06	
5	47	2 P	28	12 P	37.5	59	8.0	nw	139	15	12 M	12:30 P	.01	
6	55	3 P	24	6 A	39.5	70	7.3	s	30	5				
7	59	3 P	30	5 A	44.5	92	0.0	se	59	12				
8	70	1 P	53	0 A	61.5	75	4.3	se	180	12				
9	71	1 P	54	4 A	62.5	76	3.6	se	203	17				
10	59	0 A	40	12 P	49.5	74	0.0	nw	156	14	8 A	8 P	.10	
11	40	0 A	36	8 A	38.0	85	0.0	nw	102	15	9 A	12 P	.20	
12	44	8 P	37	0 A	40.5	99	0.0	nw	105	14	0 A	12 P	.24	
13	61	3 P	43	0 A	52.0	98	0.0	se	135	20	1 A	11:30 P	.27	
14	67	0 A	40	12 P	53.5	75	0.0	nw	150	13	4 A	12 P	.10	
15	51	1 P	32	11 P	41.5	47	5.0	nw	395	32	4:30 A	5 A	.01	
16	43	8 A	32	0 A	37.5	58	3.6	w	235	28				
17	41	1 P	29	4 A	35.0	87	1.2	nw	38	4	6 P	6:30 P	.02	
18	53	2 P	38	12 P	45.5	77	2.5	w	171	22	8 A	8:30 A	.03	
19	47	1 P	30	7 A	38.5	79	6.0	se	97	12	8 A	12 P	.71	
20	42	0 A	30	12 P	36.0	67	3.2	nw	353	28	0 A	6 A	.55	
21	41	1 P	24	7 A	32.5	71	7.8	w	115	15				
22	49	3 P	29	0 A	39.0	87	0.8	w	131	25	6 A	12 M	.93	
23	35	3 P	24	11 P	29.5	72	3.2	sw	95	12				
24	37	3 P	18	5 A	27.5	63	7.4	se	73	9				
25	40	1 P	26	12 P	33.0	72	6.1	se	91	12				
26	41	3 P	23	5 A	32.0	67	6.8	nw	44	6				
27	41	3 P	16	7 A	28.5	75	8.3	sw	29	6				
28	42	3 P	25	1 A	33.5	78	0.0	nw	90	15	11 P	12 P	.05	
29	35	2 A	25	9 P	30.0	88	0.0	n	298	20	11 A	12 P	.07	.25
30	33	1 P	25	2 A	29.0	73	0.5	nw	390	22	2 A	6 A	.18	2.75

*Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

November, 1945		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.65, 11th	30.59	30.87, 1932
Minimum	29.54, 19th	29.30	28.73, 1904
Mean semi-daily	30.048	30.05	
Range	1.11	1.29	1.84, 1904; .89, 1943
Air Temperature, in degrees F.			
Highest	71, 9th	66.0	75, 1924, 1938
Lowest	16, 27th	12.9	–4, 1938
Mean	40.3	38.9	44.1, 1931; 33.6, 1901
Range	55	53.0	
Highest mean daily	62.5, 9th		
Lowest mean daily	27.5, 24th		
Mean maximum	48.8		
Mean minimum	31.9		
Greatest daily range	31, 6th		
Least daily range	4, 11th		
Precipitation, in inches			
Precipitation	3.54	3.41	8.64, 1927; .63, 1917
Snow	3.00	2.34	13.50, 1938
Maximum precipitation in 24 hrs.	1.26, 19th, 20th		
Number of days with .01 or more	17	9	22, 1921; 2, 1904
Wind, in miles			
Total movement	4258	4531	5,978, 1906; 2,589, 1889
Greatest daily movement	395, 15th		
Least daily movement	29, 27th		
Mean hourly velocity	5.9	6.3	
Maximum velocity	32, 15th	30.3	44, 1938
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	1		
Northeast, days	0		
East, days	0		
Southeast, days	8		
South, days	1		
Southwest, days	2		
West, days	4		
Northwest, days	14		
Weather			
Mean relative humidity, percent	76	70.6	
Mean cloudiness, percent	64	55.1	72, 1900, 1927; 34, 1917
Number of clear days	7	6	15, 1903; 1, 1900, 1911, 1927
Number of fair days	8	9	16, '12; 4, '89, '30, '32, '35
Number of cloudy days	15	15	24, 1927; 9, 1905, 1917
Number hours bright sunshine	95	121	182, 1903; 66, 1927
Percent of possible hours of bright sunshine	32	41.3	
Thunder and lightning	—		
First snow	Nov. 29	Nov. 6	Oct. 10, '25; Nov. 27, '31

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1944.

REMARKS

November weather was near normal in most respects. The snowstorm on the 29th was not very severe at Amherst, with a fall of only 3 inches, but was a severe storm in the eastern part of the state. It was the first snow of the season. It was the latest date for the first snow since the station was established. The normal date for the first snow is November 6 and the normal snowfall in November is 2.34 inches. The total precipitation for the month was 3.54 inches, normal being 3.41 inches. The mean temperature for the month was 40.3 degrees whereas the normal mean temperature for the month was 16 degrees on the 27th. The domestic heating load for the month was 740 degree-days, normal being 784 degree-days. The total heating load to the end of November is 1332 degree-days. The normal heating load through September, October, and November is 1389 degree-days. There were 95 hours of bright sunshine compared to a normal of 121 hours. There were no high winds, the highest velocity being 32 miles per hour on the 15th. The mean relative humidity was 76 percent, the normal being 70.6 percent.

MASS.STATE COLLEGE
AMHERST,MASS.

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorogical Series Bulletin No. 684 December 1945

Meteorological Observations

FOR

DECEMBER

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C. I. GUNNESS

OBSERVATORY

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Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature Maximum Degrees	Temperature Maximum Time	Temperature Minimum Degrees	Temperature Minimum Time	Temperature Mean	Mean Relative Humidity	Number of Hours Bright Sunshine	Wind Prevailing Direction	Wind Total Movement	Wind Max. Miles per Hour*	Precipitation Began	Precipitation Ended	Precipitation Water	Precipitation Snow
1	35	1 P	23	12 P	29.0	62	3.6	nw	325	22				
2	37	2 P	13	8 A	25.0	69	7.6	nw	88	14				
3	36	8 P	18	5 A	27.0	88	0.0	se	53	6	10:30 A	11 A	.01	0.3
4	37	1 P	26	12 P	31.5	85	0.0	nw	102	12				
5	29	3 P	17	7 A	23.0	39	5.0	nw	104	12				
6	37	3 P	22	2 A	29.5	92	0.0	nw	172	14	5 A	12 P	.83	0.2
7	41	2 P	34	0 A	37.5	99	0.0	nw	234	13	3 A	4:30 P	.70	T
8	49	1 P	31	11 P	40.0	68	8.0	w	185	17				
9	46	2 P	24	8 A	35.0	89	6.2	se	81	13				
10	36	0 A	28	11 P	32.0	67	0.0	w	116	12				
11	30	2 A	12	12 P	21.0	49	8.0	nw	354	28				
12	21	1 P	7	7 A	14.0	39	8.0	w	325	32				
13	26	1 P	9	8 A	17.5	44	5.0	w	163	20				
14	25	1 P	10	12 P	17.5	91	1.6	w	9	2	2 A	8 A	.23	5.8
15	17	6 P	4	6 A	10.5	94	1.0	w	0	0				
16	19	2 P	3	3 A	11.0	69	4.0	sw	102	20				
17	21	3 P	1	5 A	11.0	61	6.6	sw	123	17				
18	25	2 P	5	7 A	15.0	56	7.3	sw	54	8				
19	16	8 P	5	2 A	10.5	87	0.0	nw	114	15	11 A	12 P	.21	5.3
20	21	1 P	7	10 P	14.0	79	6.9	nw	124	17	0 A	2 A	.03	0.2
21	20	3 P	3	6 A	11.5	74	6.6	w	66	15				
22	22	2 P	–1	12 P	10.5	59	4.6	w	44	28				
23	22	2 P	–3	1 A	9.5	62	8.0	nw	212	28				
24	26	3 P	9	8 A	17.5	60	8.2	nw	208	15				
25	34	12 P	4	3 A	19.0	96	0.0	w	24	7	7 P	12 P	.40	T
26	45	3 P	34	0 A	39.5	87	2.0	w	99	14	0 A	5 A	.51	
27	36	0 A	20	12 P	28.0	61	4.3	w	238	28				
28	35	3 P	14	8 A	24.5	71	7.0	sw	21	6				
29	29	9 P	21	0 A	25.0	92	0.0	nw	117	14	4 A	12 P	.56	7.0
30	33	11 P	13	8 A	23.0	95	2.5	s	43	9	0 A	12 P	.23	
31	37	4 P	27	12 P	32.0	100	0.0	w	26	9	9 A	4 P	.20	

*Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

December, 1945		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.43, 24th	30.66	30.96, 1889
Minimum	29.26, 31st	29.27	28.85, 1915
Mean semi-daily	30.004	30.06	
Range	1.17	1.38	1.78, 1895; 1.01, 1892
Air Temperature, in degrees F.			
Highest	49, 8th	54.3	65.5, 1908
Lowest	–3, 23rd	–1.9	–22.5, 1917
Mean	22.3	27.5	36.9, 1891; 17.1, 1917
Range	52	56.2	
Highest mean daily	40, 8th		
Lowest mean daily	9.5, 23rd		
Mean maximum	30.4		
Mean minimum	14.2		
Greatest daily range	30, 25th		
Least daily range	7, 7th		
Precipitation, in inches			
Precipitation	3.91	3.39	7.77, 1901; .58, 1943
Snow	18.8	8.50	26.50, '02; t, 1891, 1943
Maximum precipitation in 24 hrs.	0.91, 25th, 26th		
Number of days with .01 or more	11	10	17, 1902; 4, 1892, 1943
Wind, in miles			
Total movement	3926	4710	6,694, 1925; 3,239, 1918
Greatest daily movement	354, 11th		
Least daily movement	0, 15th		
Mean hourly velocity	5.3	6.3	
Maximum velocity	32, 12th	31.4	48, 1938, 1943, 1944
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	0		
Northeast, days	0		
East, days	0		
Southeast, days	2		
South, days	1		
Southwest, days	4		
West, days	12		
Northwest, days	12		
Weather			
Mean relative humidity, percent	73.7	69.4	
Mean cloudiness, percent	56	54.9	71, 1929; 39, 1919
Number of clear days	11	8	15, 1890; 2. 1922, 1933
Number of fair days	7	9	16, '09; 4, '89 '30, '31, '36, '38
Number of cloudy days	13	14	23, '33; 7, '09, '23
Number hours bright sunshine	122	128	172, 1896; 63, 1933
Percent of possible hours of bright sunshine	43.1		
Thunder and lightning	—	45.2	

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1944

ANNUAL SUMMARY

Annual, 1945		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.69, Apr. 7	30.81	31.05, 1920, 1943
Minimum	28.98, Jan. 1	28.95	28.41, 1938
Mean semi-daily	30.017	30.01	
Range	1.71	1.85	2.47, 1938; 1.38, 1933
Air Temperature, in degrees F.			
Highest	92, June 15, 30; July 1	95.7	104, 1911
Lowest	–10, Jan. 25	–12.2	–26, 1904
Mean	47.9	47.4	49.8, 1921; 44, 1904
Range	102	107.8	
Highest mean daily	80, June 30		
Lowest mean daily	–1, Jan. 25		
Mean maximum	58.6	57.8	
Mean minimum	37.5	36.5	
Greatest daily range	44, Apr. 10		
Least daily range	4, Mar. 22; Nov. 11		
Precipitation, in inches			
Precipitation	51.46	43.70	59.00, 1938; 30.68, 1908
Snow	65.30	47.78	89.00, 1893; 24.50, 1919
Maximum precip. in 24 hrs.	2.83, Apr. 25		
Number of days with .01 or more	146	124	144, 1902; 96, 1924
Wind, in miles			
Total movement	47,449	52,223	63,571, 1908; 36,257, 1894
Greatest daily movement	484, Apr. 22		
Least daily movement	0, Dec. 15		
Mean hourly velocity	5.4	5.8	
Maximum velocity	45, Jan. 24	39.5	80, 1938
Wind, direction			
Prevailing direction	W	W	
North, days	16		
Northeast, days	1		
East, days	20		
Southeast, days	101		
South, days	16		
Southwest, days	20		
West, days	80		
Northwest, days	111		
Weather			
Mean relative humidity, percent	71.5	67.6	
Mean cloudiness, percent	56	51.7	60, '98, '01, '02; 41, '08, '24
Number of clear days	132	116	217, 1941; 59, 1927
Number of fair days	121	123	182, 1912; 64, 1936
Number of cloudy days	112	126	179, '01, '02; 71, 1910, 1941
Number hours bright sunshine	2332	2,353	3038, 1941; 1864, 1902
Percent of possible hours of bright sunshine	52.4	52.8	
Last snow	May 11	April 15	Mar. 14, '10; May 11, '07
First snow	Nov. 29	Nov. 6	Oct. 10, '25; Dec. 13, '41
Last frost	Apr. 24	May 14	Apr. 14, '43; June 8, '32
First frost	Oct. 4	Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 685 January 1946

Meteorological Observations

FOR

JANUARY

1946

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	27	0 A	17	12 P	22.0	56	6.0	w	281	20				
2	21	1 P	5	12 P	13.0	50	9.1	nw	218	18				
3	29	3 P	1	7 A	15.0	70	7.7	se	39	6				
4	39	3 P	23	7 A	31.0	70	4.0	se	47	7				
5	46	3 P	31	1 A	38.5	79	4.0	se	120	9				
6	50	3 P	41	0 A	45.5	90	0.2	se	198	12				
7	49	3 A	40	12 P	44.5	94	0.0	s	55	7				
8	44	2 P	28	12 P	36.0	65	6.0	nw	57	10	11:30 A	12 M	.01	
9	35	7 P	27	1 A	31.0	88	0.0	w	17	6	1 P	12 P	.40	
10	43	11 A	32	0 A	37.5	62	3.8	w	206	25	0 A	1 A	.02	
11	42	3 P	32	8 A	37.0	50	8.0	w	175	25				
12	39	6 P	32	5 A	35.5	86	0.0	se	70	12	3 A	8 A	.15	0.6
13	36	0 A	18	12 P	27.0	48	7.0	w	341	40	2 A	2:30 A	.03	
14	24	12 P	12	8 A	18.0	49	5.3	sw	242	22				
15	31	12 M	11	12 P	21.0	59	3.0	nw	150	18			T	T
16	18	3 P	0	8 A	9.0	49	9.5	n	117	20				
17	26	4 P	1	8 A	13.5	66	5.7	w	9	2				
18	30	4 P	17	3 A	23.5	70	3.4	w	57	32	7 A	8 A	T	T
19	27	4 A	1	12 P	14.0	46	9.0	w	375	32	1 A	2 A	.03	T
20	16	12 P	–4	8 A	6.0	47	4.0	nw	151	20				
21	32	12 P	14	2 A	23.0	92	1.8	nw	195	15	5 A	12 P	.53	7.0
22	33	3 A	9	12 P	21.0	60	6.3	w	216	25	0 A	4 A	.10	
23	28	3 P	–7	7 A	10.5	70	9.3	se	48	9				
24	29	11 P	–3	7 A	13.0	89	0.8	w	39	8	5 P	12 P	.37	3.7
25	35	2 P	26	7 A	30.5	68	0.8	sw	226	28	0 A	2 P	.40	4.0
26	36	10 A	12	12 P	24.0	53	5.1	nw	254	25				
27	22	3 P	6	7 A	14.0	47	8.0	w	111	22				
28	30	3 P	–8	7 A	11.0	67	5.7	se	56	13				
29	31	3 P	10	12 P	20.5	52	9.5	nw	270	32				
30	17	12 P	6	5 A	11.5	73	0.0	nw	48	8	2 P	12 P	.52	5.0
31	25	12 P	17	0 A	21.0	98	0.0	nw	33	9	1 A	6 P	.16	

*Based on least time required to blow one mile.

FERDINAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

January, 1946		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.70, 20th	30.70	31.00, 1927
Minimum	29.41, 31st	29.20	28.55, 1913
Mean semi-daily	30.118	30.07	
Range	1.29	1.50	2.18, 1913; 0.97, 1896
Air Temperature, in degrees F.			
Highest	50, 6th	51.1	66.0, 1932
Lowest	–8, 28th	–7.1	–26.0, 1904
Mean	23.2	24.2	34.2, 1913; 13.9, 1918
Range	58	58.2	
Highest mean daily	45.5, 6th		
Lowest mean daily	6.0, 20th		
Mean Maximum	31.9		
Mean Minimum	14.4		
Greatest daily range	35, 23rd		
Least daily range	7, 12th		
Precipitation, in inches			
Precipitation	2.72	3.61	7.15, 1898; 1.07, 1896
Snow	20.3	13.32	33, 1898, 1923; 1.50, '08
Maximum precip. in 24 hrs.	0.77, 24th, 25th		
Number of days with .01 or more	12	11	15, '93, '20; 4, 1901
Wind, in miles			
Total movement	4421	5055	7770, 1908; 2896, 1895
Greatest daily movement	375, 19th		
Least daily movement	9, 17th		
Mean hourly velocity	5.9	6.8	
Maximum velocity	40, 13th	32.7	47, 1938
Wind, direction			
Prevailing direction	W	WNW	
North, days	1		
Northeast, days	0		
East, days	0		
Southeast, days	7		
South, days	1		
Southwest, days	2		
West, days	11		
Northwest, days	9		
Weather			
Mean relative humidity, percent	66.6	70.1	
Mean cloudiness, percent	58	55	78, 1932; 37, 1908
Number of clear days	9	9	20, 1944; 2, 1914
Number of fair days	13	9	18, 1890, 1926; 3, 1916, 1944
Number of cloudy days	9	13	22, 1923, 1931; 4, 1920, 1939
Number hours bright sunshine	143	137	214, 1920; 74, 1932
Percent of possible hours of bright sunshine	48.6	46.7	
Thunder and lightning	–		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1945.

REMARKS

The weather during January was slightly colder than normal and there was more snow than usual. The mean temperature was 23.2 degrees while the normal mean temperature for January is 24.2 degrees. The lowest temperature was –8 degrees on the 28th and the highest, 50 degrees on the 6th. The average minimum temperature in January is –7.1 degrees. The domestic heating load for the month was 1296 degree-days as compared to a normal of 1265 degree-days. The heating load for the season to the end of January is 3952 degree-days, the normal for this period being 3817 degree-days.

The total snowfall for the month was 20.3 inches. Usually we get 13.32 inches of snow in January. The total precipitation for the month was 2.72 inches, the normal being 3.61 inches. There were 143 hours of bright sunshine as compared to a normal of 137 hours. There were high winds on January 13, the maximum being 40 miles per hour.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 686 February 1946

Meteorological Observations

FOR

FEBRUARY

1946

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
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AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	31	3 P	22	12 P	26.5	52	5.0	w	279	28				
2	38	1 P	14	7 A	26.0	55	8.0	se	183	25				
3	20	0 A	4	12 P	12.0	56	10.1	w	291	28				
4	25	2 P	–8	7 A	8.5	56	9.5	nw	143	13				
5	28	4 P	–4	7 A	12.0	55	9.5	w	98	8				
6	44	9 P	13	0 A	28.5	89	0.0	nw	56	22	8 A	12 P	.49	
7	38	0 A	23	12 P	30.5	67	1.7	w	224	25	0 A	12 M	.03	T
8	33	3 P	12	8 A	22.5	52	10.2	w	164	18				
9	37	3 P	10	1 A	23.5	73	0.0	s	44	7				
10	36	3 P	17	12 P	26.5	52	10.3	nw	206	22				
11	32	4 P	7	8 A	19.5	58	10.3	nw	147	15				
12	39	2 P	18	6 A	28.5	56	10.4	se	80	13				
13	39	4 P	25	1 A	32.0	77	0.0	se	178	13	5 P	12 P	.20	
14	51	2 P	31	12 P	41.0	84	0.5	se	232	22	3 P	3:30P	.11	
15	31	0 A	7	12 P	19.0	49	4.2	w	383	48				
16	24	12 P	4	7 A	14.0	51	9.0	se	303	40				
17	43	1 P	24	0 A	33.5	59	7.0	w	125	12				
18	29	3 A	13	12 P	21.0	43	10.7	w	297	32				
19	21	8 P	4	7 A	12.5	51	3.0	nw	82	9	8 P	12 P	.02	0.30
20	31	3 P	18	1 A	24.5	83	4.5	w	329	50	0 A	1 P	1.13	13.00
21	21	0 A	7	9 A	14.0	51	10.8	w	499	40				
22	29	3 P	2	7 A	15.5	61	7.0	se	130	17				T
23	41	3 P	18	7 A	29.5	67	9.5	nw	38	6				
24	33	3 P	21	1 A	27.0	75	2.5	nw	64	9				
25	31	1 P	9	12 P	20.0	53	9.3	nw	363	28				
26	22	12 P	1	6 A	11.5	78	0.0	se	80	25	9 A	12 P	.30	3.00
27	28	8 P	22	0 A	25.0	91	0.0	nw	108	13	0 A	12 P	.79	1.50
28	36	4 P	21	12 P	28.5	69	11.0	nw	204	22	0 A	7 A	.45	0.50

*Based on least time required to blow one mile.

FERDINAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

February, 1946		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.61, 5th	30.63	31.05, 1920
Minimum	29.23, 14th	29.24	28.56, 1895
Mean semi-daily	30.019	30.04	
Range	1.38	1.38	1.89, '00, '08; .88, '13, '31
Air Temperature, in degrees F.			
Highest	51, 14th	50.5	65.0, 1930
Lowest	–8, 4th	–7.4	–23, 1943
Mean	22.6	23.7	
Range	59	58	
Highest mean daily	41, 14th		
Lowest mean daily	8.5, 4th		
Mean maximum	32.5	32.8	
Mean minimum	12.7	14.5	
Greatest daily range	33, 4th		
Least daily range	6, 27th		
Precipitation, in inches			
Precipitation	3.52	3.19	8.12, 1900; 0.62, 1901
Snow	18.30	13.99	48.75, 1893; 0.50, 1937
Maximum precipitation in 24 hours	1.13, 20th		
Number of days with .01 or more	9	10	15, '93, '20; 4, 1901
Wind, in miles			
Total movement	5330	4776	6445, 1896; 3438, 1892
Greatest daily movement	499, 21st		
Least daily movement	38, 23rd		
Mean hourly velocity	7.9	7.1	
Maximum velocity	50, 20th	31.7	48, 1934, 1937, 1944
Wind, direction			
Prevailing direction	W	WNW	
North, days	0		
Northeast, days	0		
East, days	0		
Southeast, days	7		
South, days	1		
Southwest, days	0		
West, days	10		
Northwest, days	10		
Weather			
Mean relative humidity, percent	63	66.6	
Mean cloudiness, percent	50	50.9	66, '90, '27; 31, 1905
Number of clear days	14	10	19, 1941; 2, 1927
Number of fair days	5	8	16, 1920; 2, 1936
Number of cloudy days	9	10	16, 1894; 2, 1920
Number of hours bright sunshine	174	158	221, 1924; 110, '27, '38
Percent of possible hours of bright sunshine	58.8	53.4	
Thunder and lightning	—		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1945.

REMARKS

February was a severe winter month. The mean temperature was 22.6 degrees, the normal being 23.7 degrees. This makes the month the coldest February since 1936. The lowest temperature was –8 degrees on the 4th and the highest, 51 degrees on the 14th. The heating load during the month was 1187 degree-days, the normal being 1165 degree-days. The total heating load from September to the end of February is 5139 degree-days as compared to a normal of 4982 degree-days. The snowfall during the month was 18.30 inches. The normal snowfall for February is 13.99 inches. The total snowfall for the season is now 60.4 inches. The normal snowfall to the end of February is 38.15 inches and the normal snowfall for the year is 47.78 inches.

There were 174 hours of bright sunshine. This is well in excess of the 158 hours which is normal for February. The relative humidity was 63 percent compared to a normal of 66.6 percent.

There were high winds on the 15th and 20th. On the former date a velocity of 48 miles per hour was recorded and on the 20th the maximum was 50 miles per hour.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series　Bulletin No. 687　March 1946

Meteorological Observations
FOR
MARCH
1946

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
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AMHERST, MASS.

DAILY RECORDS

Day	Temperature				Mean	Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time				Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	39	2 P	8	7 A	23.5	76	11.2	s	51	10				
2	36	10 A	32	0 A	34.0	89	0.1	nw	113	14	2 P	7 P	.12	
3	44	11 A	30	12 P	37.0	69	8.7	w	146	39			T	
4	58	5 P	28	6 A	43.0	55	9.5	s	87	8				
5	50	4 P	37	7 A	43.5	70	5.0	nw	40	11	5 P	5:30 P	T	
6	55	5 P	34	7 A	44.5	65	9.1	e	110	22				
7	48	2 P	37	7 A	42.5	90	1.2	se	126	13	3 P	9 P	.29	
8	51	3 P	31	7 A	41.0	83	9.7	w	44	6	7 P	12 P	.24	
9	56	11 A	32	12 P	44.0	59	4.8	sw	250	32	0 A	8 A	.22	
10	40	3 P	26	12 P	33.0	48	11.6	nw	327	32				
11	39	3 P	21	7 A	30.0	62	7.8	nw	138	13	5 P	5:30 P	T	T
12	47	3 P	21	5 A	34.0	62	11.7	s	147	13				
13	70	3 P	35	7 A	52.5	57	9.5	se	209	20				
14	75	4 P	39	7 A	57.0	62	8.0	w	122	15				
15	58	0 A	33	12 P	45.5	88	0.0	n	97	11	8 A	11:30 A	.03	
16	61	5 P	29	6 A	45.0	71	11.9	w	43	5				
17	57	3 P	30	6 A	43.5	67	7.2	e	78	9				
18	57	3 P	28	6 A	42.5	58	12.0	e	136	13				
19	55	4 P	27	6 A	41.0	64	12.0	e	105	9				
20	63	3 P	24	7 A	43.5	57	12.1	nw	88	13				
21	69	4 P	27	6 A	48.0	58	12.2	sw	77	8				
22	73	4 P	31	7 A	52.0	54	10.5	s	128	11				
23	51	3 P	30	7 A	40.5	57	12.3	nw	342	28				
24	65	4 P	25	5 A	45.0	59	10.5	se	92	11				
25	60	4 P	40	8 A	50.0	87	5.5	e	116	17	3 A	10 A	.51	
26	71	3 P	37	7 A	54.0	82	8.0	s	125	18	8 P	10 P	.19	
27	67	4 P	48	4 A	57.5	44	12.5	w	222	32				
28	79	3 P	46	7 A	62.5	52	12.5	w	206	22				
29	83	3 P	47	7 A	65.0	57	12.6	se	156	17				
30	60	3 P	36	12 P	48.0	49	10.8	nw	262	20				
31	45	1 P	28	5 A	36.5	39	12.7	nw	254	20				

* Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

March, 1946		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.46, 12th	30.57	31.05, 1943
Minimum	29.44, 9th	29.24	28.47, 1914
Mean semi-daily	30.073	30.00	
Range	1.02	1.34	2.10, 1914; 0.85, 1915
Air Temperature, in degrees F.			
Highest	83, 29th	63.8	85, 29th
Lowest	8, 1st	6.1	-7.5, 1906
Mean	44.5	34.4	
Range	75	57.6	
Highest mean daily	65, 29th		
Lowest mean daily	23.5, 1st		
Mean maximum	57.8	43.2	
Mean minimum	31.5	25.4	
Greatest daily range	42, 21st, 22nd		
Least daily range	4, 2nd		
Precipitation, in inches			
Precipitation	1.60	3.70	7.89, 1942; 0.12, 1915
Snow	T	7.47	27, 1899; 0, 1921
Maximum precipitation in 24 hrs.	0.51, 25th		
Number of days with .01 or more	7	11	17, 1890, 1913, 1936; 3, 1915
Wind, in miles			
Total movement	4437	5944	8182, 1896; 3006, 1905
Greatest daily movement	342, 23rd		
Least daily movement	40, 5th		
Mean hourly velocity	6.0	7.7	
Maximum velocity	39, 9th	31.2	48, 1932, 1939, 1941, 1942
Wind, direction			
Prevailing direction	WSW	WNW	
North, days	1		
Northeast, days	0		
East, days	5		
Southeast, days	4		
South, days	5		
Southwest, days	2		
West, days	6		
Northwest, days	8		
Weather			
Mean relative humidity, percent	64.2	64.2	
Mean cloudiness, percent	36	51.8	68, 1901; 27, 1915
Number of clear days	21	11	22, 1924; 3, 1901
Number of fair days	7	10	17, 1900; 1, 1943
Number of cloudy days	3	10	21, 1901; 1, 1915
Number of hours bright sunshine	283	199	292, 1924; 93, 1901
Percent of possible hours of bright sunshine	76.3	53.6	
Thunder and lightning	—		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1945.

REMARKS

The weather during March was unusually warm, with much sunshine, very little rainfall and only a trace of snow. The mean temperature for the month was 44.5 degrees which exceeds the all-time record for March set last year by one-tenth of a degree. The normal mean temperature for March is 34.4 degrees. The maximum temperature was 83 degrees on the 29th and the lowest, 8 degrees on the 1st. Last year the maximum temperature in March was 85 degrees which also occurred on the 29th, and this is the highest reading ever recorded in March. The college pond was clear of ice on March 20. The heating load during the month was 636 degree-days, while the normal for March is 950 degree-days. The total load for the season to the end of March is 5775 degree-days, the normal for this period being 5932 degree-days.

The total precipitation was 1.60 inches, all of which fell as rain except for a light snow squall on the 11th. Normally we get 7.47 inches of snow, with a total precipitation of 3.70 inches. The total snowfall for this winter to the end of March is 60.40 inches, which is the heaviest seasonal fall since the winter of 1925-26 when 61.00 inches was recorded. The normal for the same period is 45.62 inches.

There were 283 hours of sunshine, compared to a normal of 199 hours; and 21 days were classified as clear. The mean relative humidity was 64.2 percent, while the normal for March is also 64.2 percent. High winds were recorded on the 3rd, 9th, 10th and 27th.

Dr. J. K. Shaw makes the following report on the progress of vegetation: "The temperature this month has been slightly higher than it was during the abnormally warm March of 1945. Vegetation has advanced to about the same stage and our comments of a year ago can now be repeated. 'The extremely high temperatures in March have advanced vegetation so that it is about as far along as it was a month later last year. Grass is green and leaves are developing on many shrubs. Forsythia is in full bloom at the last of the month. It is, so far, the earliest spring in many years.' The month closes with cooler weather; if this persists, it could delay bloom of fruit trees until danger of frost injury is decreased. It would require a temperature around 20 degrees or possibly a little lower to cause serious injury to fruit buds at the present stage of development. We can be quite sure that bloom will be earlier than normal and that there will be a decreasing probability of cold injury until late May or even early June. We can hope to escape cold injury this year, but we may as well admit that the fruit crop of 1946 is in great danger.

"Fruit trees came through the winter in good condition. No winter injury has been observed, and most fruit trees are full of flower buds. Few peach fruit buds were killed and the prospect is for a heavy bloom. The fruit crop of this year hangs in the balance. If it escapes cold injury, there will be a big crop. If cold comes, it may be reduced even to destruction."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 688 April 1946

Meteorological Observations

FOR

APRIL

1946

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

MONTHLY SUMMARY

April, 1946		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.50, 1st	30.48	30.71, 1911
Minimum	29.29, 26th	29.38	28.98, 1943
Mean semi-daily	29.956	29.99	
Range	1.21	1.11	1.52, 1930; .72, 1919
Air Temperature, in degrees F.			
Highest	78, 23rd	79.4	90, 1941
Lowest	19, 1st	22.0	8.5, 1923
Mean	45.0	45.7	52, 1921; 41, 1943
Range	59	57.4	
Highest mean daily	59.5, 24th		
Lowest mean daily	27.5, 1st		
Mean maximum	55.7	56.8	
Mean minimum	34.2	34.8	
Greatest daily range	43, 23rd		
Least daily range	7, 27th		
Precipitation, in inches			
Precipitation	2.16	3.35	6.89, 1929; .55, 1941
Snow	1.50	2.17	11, 1891; 0, 1910, 1934
Maximum precip. in 24 hrs.	.82, 26th		
Number of days with .01 or more	10	11	18, 1909; 3, 1892
Wind, in miles			
Total movement	5630	5404	8208, 1908; 3853, 1917
Greatest daily movement	408, 5th		
Least daily movement	63, 22nd		
Mean hourly velocity	7.8	7.5	
Maximum velocity	35, 2nd	31.4	40, 1935, 1938, 1940, 1945
Wind, direction			
Prevailing direction	W	WNW	
North, days	2		
Northeast, days	0		
East, days	0		
Southeast, days	7		
South, days	1		
Southwest, days	2		
West, days	10		
Northwest, days	8		
Weather			
Mean relative humidity, percent	64.6	61.6	
Mean cloudiness, percent	53	51.8	75, 1901; 34, 1925, 1927
Number of clear days	13	11	23, 1941; 3, 1898, 1902
Number of fair days	9	9	18, 1915; 2, 1894, 1901
Number of cloudy days	8	10	22, 1901; 1, 1941
Number of hours bright sunshine	228	220	329, 1941; 103, 1901
Percent of possible hours of bright sunshine	56.7	54.7	
Thunder and lightning	2nd, 3rd		
Last snow	April 8	Apr. 15	Mar. 14, 1910; May 11, 1907

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1945.

DAILY RECORDS

Day	Temperature				Mean	Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time				Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	36	12 M	19	6 A	27.5	66	4.9	se	117	12	2:30 P	12 P	.15	0.50
2	65	4 P	32	0 A	48.5	64	7.6	w	158	35	0 A	12 P	.53	1.00
3	55	9 A	33	12 P	44.0	69	4.7	nw	289	32	0 A	1 A	.15	
4	45	3 P	30	3 A	37.5	94	0.0	se	177	20				
5	47	1 P	35	10 P	41.0	69	2.0	w	408	28				
6	48	2 P	30	5 A	39.0	61	3.3	sw	257	20				
7	48	3 P	31	12 P	39.5	52	13.0	nw	292	20				
8	49	4 P	24	6 A	36.5	68	9.6	se	104	17	7:30 P	9:30 P	.07	T
9	49	3 P	33	0 A	41.0	88	3.6	w	140	22				
10	47	3 P	32	12 P	39.5	59	9.4	w	322	25				
11	50	1 P	28	6 A	39.0	52	10.0	nw	212	20				
12	49	5 P	29	5 A	39.0	56	8.6	n	116	15				
13	49	2 P	33	6 A	41.0	65	7.0	w	65	7				
14	64	3 P	34	5 A	49.0	55	13.0	sw	120	10				
15	63	6 P	42	0 A	52.5	76	0.0	se	230	18	11 A	8 P	.10	
16	51	0 A	39	9 P	45.0	55	13.2	w	390	32				
17	61	4 P	28	4 A	44.5	40	13.4	w	95	14				
18	66	1 P	28	6 A	47.0	58	8.6	se	204	22				
19	58	5 P	40	5 A	49.0	47	10.6	w	241	22				
20	54	10 A	40	12 P	47.0	64	7.2	nw	330	32	3 A	4 A	.03	
21	61	1 P	35	7 A	48.0	42	13.6	nw	168	18				
22	68	4 P	36	5 A	52.0	55	12.6	s	63	13				
23	78	5 P	35	5 A	56.5	55	12.0	w	80	13				
24	73	3 P	46	6 A	59.5	64	7.9	n	118	14	3:30 A	6 A	.05	
25	70	2 P	38	5 A	54.0	74	9.3	se	96	11				
26	54	0 A	46	12 P	50.0	97	0.0	nw	182	18	1 A	2 P	.82	
27	43	7 A	36	12 P	39.5	91	0.0	nw	178	18	6 A	12 M	.11	
28	53	4 P	36	0 A	44.5	52	11.3	w	259	20				
29	48	11 A	36	3 A	42.0	80	0.0	nw	78	7	3 P	9 P	.15	
30	70	4 P	41	0 A	55.5	70	11.6	se	141	12				
31														

* Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

REMARKS

The weather during April was dry and slightly cooler than normal. The precipitation during the month was only 2.16 inches, normal for April being 3.35 inches. The snow fall during the month was 1.50 inches, the normal snowfall for April being 2.17 inches.

The mean temperature during April was 45.0 degrees. This is only half a degree higher than the mean during March this year. The normal mean temperature for April is 45.7 degrees. The lowest temperature was 19 degrees on the 1st. The domestic heating load for the month was 602 degree-days compared to a normal of 579 degree-days. The heating load for the season is 6377, the normal to the end of April being 6511 degree-days.

There were 228 hours of bright sunshine which is 8 hours more than normal. Mean relative humidity was 64.6 percent, the normal being 61.6 percent.

Dr. J. K. Shaw makes the following report on the progress of vegetation:

"While March 1946 was very similar to March 1945, the month of April 1946 was distinctly cooler than April 1945. As a result, vegetation advanced very slowly. At the end of the month most apple varieties were in the pink stage of bloom and will be in full bloom with two or three warm days, probably about two weeks ahead of normal instead of three weeks or more as last year. On the morning of April 1 there was considerable cold injury to fruit buds. In our orchards no serious crop damage occurred. In other orchards about the state, there was more injury. Possibly some low lying orchards suffered enough to reduce or ruin the crop, but it seems very unlikely that the crop over the state was much reduced. We have had several narrow escapes since, but we believe that there has been no further damage.

"Practically all fruit trees in our orchards show extremely heavy bloom. Rarely and probably never have we seen our orchards so full of flowers in all our experience of nearly 40 years. The season of 1945 must have been very favorable for fruit bud formation. The crop loss was one reason, but there must have been others.

"While every day brings us nearer the time when we can feel assured of a good crop, there is still danger of cold injury. A minimum temperature of 27° or 28° would cause heavy damage. The next two weeks will be the critical period. While injurious cold may occur after the middle of May, it is not probable."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 689 May 1946

Meteorological Observations

FOR

MAY

1946

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 f
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature				Mean	Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time				Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	72	5 P	41	5 A	56.5	47	14.0	w	159	14				
2	66	4 P	36	5 A	51.0	44	14.1	nw	202	22				
3	57	3 P	30	5 A	43.5	44	14.1	nw	270	13				
4	57	2 P	31	5 A	44.0	56	11.0	se	111	13				
5	49	6 P	40	12 P	44.5	99	0.0	n	129	10	2 A	12 M	.35	
6	69	3 P	37	2 A	53.0	57	8.0	w	233	32				
7	59	1 P	40	5 A	49.5	60	6.0	s	126	20	3 P	12 P	.23	
8	56	1 P	40	12 P	48.0	55	5.0	nw	159	17	0 A	6 A	.17	
9	67	1 P	32	5 A	49.5	36	8.8	w	164	32	3 P	3:30 P	.06	
10	65	5 P	40	5 A	52.5	41	14.3	w	241	22				
11	62	7 P	41	3 A	51.5	75	0.6	se	85	12	7:30 A	12 M	.14	
12	61	11 P	50	12 P	55.5	77	0.9	sw	81	10	3 A	9:30 P	.29	
13	69	5 P	41	5 A	55.0	41	14.5	sw	140	20				
14	71	1 P	41	6 A	56.0	48	9.0	se	115	15	10:30 P	12 P	.13	
15	68	7 P	48	2 A	58.0	75	4.8	nw	104	9	0 A	7:30 A	.58	
16	65	5 P	51	1 A	58.0	74	1.6	se	97	8	10:30 P	11 P	.06	
17	65	11 A	53	6 P	59.0	79	1.9	nw	136	13	6:30 A	9 P	.93	
18	55	0 A	44	12 P	49.5	81	0.0	ne	129	9	0 A	11 P	.26	
19	69	5 P	43	4 A	56.0	75	9.2	w	102	13				
20	73	3 P	43	5 A	58.0	61	10.6	se	72	8				
21	75	3 P	52	12 P	63.5	86	4.0	se	185	22	6 A	5.30 P	.57	
22	70	6 P	48	12 P	59.0	51	14.8	nw	161	17				
23	79	3 P	41	4 A	60.0	53	14.8	se	83	12				
24	80	4 P	45	6 A	62.5	54	14.9	se	118	10				
25	86	2 P	55	5 A	70.5	70	8.4	se	177	17	7 P	7:30 P	.05	
26	78	12 M	60	12 P	69.0	78	7.3	nw	131	10				
27	66	12 M	52	11 P	59.0	91	0.0	n	97	12	1:30 A	12 P	1.47	
28	54	2 A	46	12 P	50.0	74	0.0	n	252	18	0 A	5 A	.12	
29	71	5 P	45	2 A	58.0	49	11.2	nw	170	20				
30	82	3 P	40	4 A	61.0	56	15.0	w	108	17				
31	84	5 P	55	5 A	69.5	50	15.2	sw	134	25				

* Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

May 1946		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.41, 14th	30.39	30.62, 1936
Minimum	29.62, 8th	29.51	29.10, 1938
Mean semi-daily	29.969	29.96	
Range	0.79	0.88	
Air Temperature, in degrees F.			
Highest	86, 25th	86.1	94.5, 1896, 1911
Lowest	30, 3rd	31.2	24.0, 1900
Mean	55.8	57.1	
Range	56	54.9	
Highest mean daily	70.5, 25th		
Lowest mean daily	43.5 3rd		
Mean maximum	67.7		
Mean minimum	43.9		
Greatest daily range	42, 30th		
Least daily range	8, 28th		
Precipitation, in inches			
Precipitation	5.41	3.60	7.44, 1931; .48, 1903
Snow	—		
Maximum precip. in 24 hrs.	1.47, 27th		
Number of days with .01 or more	15	12	20, 1901, 1945; 5, 1903
Wind, in miles			
Total movement	4471	4504	5946, 1907; 2180, 1894
Greatest daily movement	252, 28th		
Least daily movement	72, 20th		
Mean hourly velocity	6.0	6.1	
Maximum velocity	32, 6th, 9th	28.8	45, 1935
Wind, direction			
Prevailing direction	W	W	
North, days	3		
Northeast, days	1		
East, days	0		
Southeast, days	9		
South, days	1		
Southwest, days	3		
West, days	6		
Northwest, days	8		
Weather			
Mean relative humidity, percent	54.8	60.7	
Mean cloudiness, percent	55	52.1	70, 1901, 1902; 30, 1923
Number of clear days	12	11	21, 1944; 0, 1927
Number of fair days	10	11	17, 1907, 1926; 5, 1923
Number of cloudy days	9	9	20. 1927; 2, 1941
Number of hours bright sunshine	254	252	350, 1944; 137, 1927
Percent of possible hours of bright sunshine	56.1	55.6	
Thunder and lightning	—		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1945.

REMARKS

May weather was colder and wetter than normal but neither as wet nor as cold as May, 1945.

The mean temperature during the month was 55.8 degrees, the normal being 57.1 degrees. May of last year was 54.1 degrees. The lowest temperature was 30 degrees on the 3rd. The 3rd and 4th are the only days on which the temperature fell below freezing. The highest temperature was 86 degrees on the 25th. The domestic heating load was 298 degree-days, the normal being 267 degree-days. The heating load for the season is now 6675 degree-days, the normal for the year to the end of May being 6778 degree-days.

The total precipitation for the month was 5.41 inches as compared to a normal of 3.60 inches. The rainfall in May, 1945 was 6.45 inches. The precipitation since January 1st is now 15.41 inches, while the normal for this period is 17.45 inches. Rain fell on 15 days. Rain fell on 20 days in May, 1945. There were 254 hours of bright sunshine which is two hours higher than normal. Relative humidity was 54.8 percent, the normal being 60.7 percent.

Dr. J. K. Shaw comments as follows on the progress of vegetation: "The early part of May this year was cooler than May, 1945 and the relatively slower development of vegetation of April continued. Full bloom of apples occurred during the first week in May, about two weeks ahead of normal. As in 1945, the blooming period was much longer than usual. At the end of May, development was fully back to normal. All tree fruits produced a remarkably heavy bloom.

"Cold injury during April varied in different orchards from none to severe. There were three mornings in May when the temperature was dangerously low. These were May 3, 4 and 9. On May 3 there was some further injury to apple blossoms. We can, at the end of the month, feel fairly sure that the fruit crop is past danger from cold. Contrary to common belief, peaches are more resistant to spring cold than apples and a good crop is probable; there was little or no killing from mid-winter cold. The apple crop will be much larger than that of 1945 and may be up to normal. The set of fruit of some varieties is rather poor and there may be further loss as the 'June drop' is not yet completed.

"Rainfall in May was heavy and a good crop of strawberries is assured if wet weather during June does not cause the berries to rot. The blueberry crop was somewhat reduced by cold."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series　Bulletin No. 690　June 1946

Meteorological Observations

FOR

JUNE

1946

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N.　Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

MONTHLY SUMMARY

JUNE, 1946		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.33, 16th	30.30	30.54, 1889
Minimum	29.66, 18th	29.55	29.24, 1902
Mean semi-daily	30.023	29.95	
Range	0.67	0.75	
Air Temperature, in degrees F.			
Highest	92, 27th	91.2	101, 1919
Lowest	39, 3rd	40.0	34, 1891
Mean	65.0	65.7	
Range	53	51.3	
Highest mean daily	79.5, 27th		
Lowest mean daily	46,5, 2nd		
Mean maximum	78.0		
Mean minimum	52.0		
Greatest daily range	37, 23rd		
Least daily range	7, 2nd		
Precipitation, in inches			
Precipitation	3.30	3.75	9,68, 1922; 0.76, 1908
Snow	—		
Maximum precip, in 24 hrs.	1.26, 2nd		
Number of days with .01 or more	10	11	17, 1922, 1945; 4, 1908
Wind, in miles			
Total movement	3362	3585	4571, 1908; 1409, 1906
Greatest daily movemnt	308, 9th		
Least daily movement	42, 23rd		
Mean hourly velocity	4.7	5.0	
Maximum velocity	47, 11th	24.6	48, 1939
Wind, direction			
Prevailing direction	S	WSW	
North, days	2		
Northeast, days	1		
East, days	0		
Southeast, days	12		
South, days	4		
Southwest, days	6		
West, days	3		
Northwest, days	2		
Weather			
Mean relative humidity, percent	66.3	66.9	
Mean cloudiness, percent	42	51.1	71, 1903; 28, 1908
Number of clear days	17	10	22, 1908, 1941, 1943; 1, 1927
Number of fair days	10	12	23, 1912; 3, 1941
Number of cloudy days	3	8	22, 1903; 1, 1923
Number of hours bright sunshine	331	257	362, 1908; 102, 1903
Percent of possible hours of bright sunshine	72.4	54.0	
Thunder and lightning	8th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1945.

DAILY RECORDS

Day	Temperature				Mean	Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time				Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	66	0 A	45	1 P	55.5	84	0.0	ne	110	12	8:30 A	3 P	.17	
2	50	6 P	43	12 P	46.5	92	0.0	n	83	10	3 A	12 P	1.26	
3	73	3 P	39	4 A	56.0	63	13.6	sw	52	5				
4	69	1 P	49	12 P	59.0	61	14.1	se	80	8	1 A	4 A	.07	
5	67	2 P	44	5 A	55.5	72	13.3	nw	100	22	1 P	5:30 P	.12	
6	72	3 P	41	5 A	56.5	60	10.0	sw	83	15				
7	79	1 P	52	5 A	65.5	67	10.0	se	92	13				
8	90	2 P	61	5 A	75.5	79	7.0	sw	99	40	7:30 P	8:30 P	.47	
9	72	12 M	47	11 P	59.5	44	15.3	w	308	28				
10	72	3 P	43	5 A	57.5	43	15.4	w	142	13				
11	78	3 P	51	1 A	64.5	72	8.5	se	159	47	4 P	5:30 P	.58	
12	82	5 P	60	12 P	71.0	74	8.3	s	133	12	4 A	8 A	.27	
13	80	3 P	51	12 P	65.5	71	7.4	nw	113	14				
14	73	4 P	43	5 A	58.0	56	15.3	s	80	7				
15	75	5 P	46	4 A	60.5	60	14.8	se	60	7				
16	79	3 P	47	5 A	63.0	56	15.3	se	116	10				
17	80	3 P	51	4 A	65.5	52	11.3	se	166	11				
18	75	12 M	55	12 P	65.0	78	4.5	n	185	22	4 A	10 A	.21	
19	73	6 P	45	6 A	59.0	47	15.3	sw	85	10				
20	73	1 P	46	5 A	59.5	59	11.8	se	128	11				
21	77	3 P	59	3 A	68.0	80	8.0	se	123	7				
22	78	2 P	53	12 P	65.5	67	11.0	w	130	15				
23	85	5 P	48	6 A	66.5	63	15.3	sw	42	6				
24	89	4 P	56	6 A	72.5	59	15.3	sw	70	8				
25	91	3 P	62	5 A	76.5	58	15.3	se	82	9				
26	91	3 P	63	5 A	77.0	67	12.0	s	109	13				
27	92	3 P	67	5 A	79.5	68	12.5	se	144	12				
28	89	2 P	63	5 A	76.0	79	8.0	se	85	22	4 P	6 P	.07	
29	88	1 P	61	5 A	74.5	78	13.8	s	83	13	4 P	4:30 P	.08	
30	83	3 P	68	5 A	75.5	80	8.6	se	120	11				
31														

* Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

REMARKS

June weather averaged near normal, the rainy first half of the month being offset by the hot, dry spell the last half of the month.

The mean temperature for the month was 65 degrees, the normal being 65.7 degrees. The maximum temperature was 92 degrees on the 27th, with the daily maximums for the last eight days ranging from 83 to 92. The minimum temperature was 39 degrees on the 3rd, the normal minimum for June being 40 degrees. The domestic heating load for June was 100 degree-days, the normal for this month being 68 degree-days. The total heating load for the past season is 6775 degree-days as compared to the normal of 6846 degree-days.

The total rainfall for the month was 3.30 inches, while the normal is 3.75 inches. The total precipitation since the first of the year is now 18.71 inches, compared to the normal of 21.20 inches for the same period.

There were 17 clear days this month, whereas during the month of June last year precipitation fell on 17 days. There were 331 hours of bright sunshine compared to a normal of 257 hours. The maximum wind velocity on the 11th was 47 miles an hour.

Dr. J. K. Shaw makes the following comment on the progress of vegetation: "The first part of the month of June was characterized by excessive rainfall and much cloudy, humid weather. This, together with the heavy carry-over of scabby leaves, resulted in one of the worst apple scab years for a long time; there will be a lot of scabby McIntosh this fall. The set of apples was fair and a crop nearly or quite up to average is indicated at present. In some orchards on frosty locations the crop of apples will be light or none. The crop will not come up to the promise made by the remarkably heavy bloom. Peaches generally escaped blossom killing and there should be a good crop. Weather for strawberries was favorable, plenty of rain during the growing period and drier weather during harvest. Available supplies are restricted by the reduced area devoted to this crop. The month closes with a hot period with little rainfall. Conditions have favored a good hay crop and harvesting conditions have been good so far."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 691 July, 1946

Meteorological Observations

FOR

JULY

1946

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

MONTHLY SUMMARY

July, 1946		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.29, 16th	30.27	30.50, 1892
Minimum	29.79, 12th, 20th	29.59	29.27, 1932
Mean semi-daily	30.040	29.96	
Range	0.50	0.68	0.97, 1892; 0.47, 1938
Air Temperature, in degrees F.			
Highest	95, 19th	93.9	104, 1911
Lowest	46, 16th	46.4	40, 1890, 1898
Mean	70.2	70.8	74.7, 1921; 66.3, 1891
Range	49	47.7	
Highest mean daily	81.5, 20th		
Lowest mean daily	62.0, 16th		
Mean maximum	82.3		
Mean minimum	58.0		
Greatest daily range	39, 18th, 19th		
Least daily range	10, 22nd, 23rd, 31st		
Precipitation, in inches			
Precipitation	5.30	4.10	14.51, 1897; 0.70, 1929
Snow	—		
Maximum precip. in 24 hrs.	3.46, 23rd		
Number of days with .01 or more	6	11	20, 1915; 4, 1924
Wind, in miles			
Total movement	3229	3422	5097, 1909; 1109, 1894
Greatest daily movement	204, 15th		
Least daily movement	48, 28th		
Mean hourly velocity	4.3	4.6	
Maximum velocity	28, 30th	28.7	44, 1936
Wind, direction			
Prevailing direction	SW	SW	
North, days	1		
Northeast, days	0		
East, days	1		
Southeast, days	11		
South, days	3		
Southwest, days	2		
West, days	2		
Northwest, days	11		
Weather			
Mean relative humidity, percent	69.2	68.4	
Mean cloudiness, percent	53	50.9	70, 1943; 31, 1924
Number of clear days	21	10	22, 1923; 0, 1915
Number of fair days	4	14	24, ’09, ’21; 5, ’89, ’23, ’28, ’36
Number of cloudy days	6	7	18, 1889; 0, 1910
Number of hours bright sunshine	319	268	371, 1910; 180, 1931
Percent of possible hours of bright sunshine	69	58	
Thunder and lightning	30th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1945.

DAILY RECORDS

Day	Temperature				Mean	Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time				Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	82	1 P	70	4 A	76.0	78	7.6	se	196	17				
2	82	5 P	63	12 P	72.5	70	11.2	nw	174	14	2 A	8 A	.58	
3	81	6 P	57	12 P	69.0	57	15.2	nw	104	11				
4	82	4 P	51	5 A	66.5	71	15.2	nw	77	11				
5	84	3 P	52	5 A	68.0	57	15.2	se	74	11				
6	86	2 P	54	5 A	70.0	63	12.6	s	106	9				
7	87	1 P	61	12 P	74.0	60	14.6	nw	151	15				
8	82	3 P	53	5 A	67.5	63	12.9	se	73	7				
9	79	2 P	65	5 A	72.0	89	3.8	se	134	10				
10	88	4 P	67	6 A	77.5	63	11.6	e	90	12				
11	78	5 P	63	12 P	70.5	77	5.8	se	68	7				
12	78	4 P	62	1 A	70.0	80	2.5	se	96	5				
13	85	3 P	61	5 A	73.0	57	14.5	nw	75	9				
14	89	2 P	56	5 A	72.5	64	11.8	s	106	20				
15	75	4 P	51	12 P	63.0	52	13.2	n	204	25				
16	78	5 P	46	6 A	62.0	55	14.8	nw	88	8				
17	84	6 P	47	6 A	65.5	62	15.0	sw	55	7				
18	89	4 P	50	6 A	69.5	56	12.5	sw	69	9				
19	95	4 P	56	6 A	75.5	61	11.0	se	95	11				
20	92	4 P	71	6 A	81.5	67	11.1	w	122	14				
21	74	0 A	58	12 P	66.0	94	0.0	nw	99	6	12:30 A	11 P	.54	
22	68	2 P	58	4 A	63.0	99	0.8	nw	66	17	5 P	11 P	.49	
23	74	11 A	64	12 P	69.0	97	0.0	se	134	11	0 A	6:30 P	3.46	
24	83	4 P	63	2 A	73.0	85	10.6	se	112	8			T	
25	82	3 P	66	12 P	74.0	68	9.2	w	124	13	3 A	4:30 A	.02	
26	87	3 P	57	12 P	72.0	55	12.3	nw	117	12				
27	78	3 P	49	6 A	63.5	63	14.6	nw	63	9				
28	83	3 P	49	6 A	66.0	59	14.5	s	48	8				
29	87	1 P	56	6 A	71.5	67	13.2	se	101	10				
30	89	3 P	61	6 A	75.0	77	9.7	se	95	28	5:30 P	9 P	.21	
31	71	11 A	61	12 P	66.0	79	2.0	nw	113	11				

* Based on least time required to blow one mile.

JOHN D. HILCHEY, *Observer*

REMARKS

The unusual feature of July weather was the heavy rain on the 23rd. A total of 3.46 inches fell on that day. There was no rain from the 2nd to the 21st but a total of 4.49 inches fell in the storm from the 21st to the 23rd. The total rainfall for the month was 5.30 inches, normal for July being 4.10 inches. The total precipitation from January 1 to July 31 was 24.01 inches. The normal precipitation for this period is 25.30 inches. The mean temperature for July was 70.2 degrees, normal being 70.8 degrees. Rain fell on only 6 days and there were 319 hours of bright sunshine compared to a normal of 268 hours. Relative humidity was 69.2 percent. There were no high winds during the month.

Dr. J. K. Shaw, research pomologist, makes the following statement: "The dry period which began the latter part of June continued until July 22 when heavy showers relieved the situation. The strawberry crop was far enough along to mature a good crop before conditions became severe, but raspberries suffered severely. Lawns became brown where the soil was not retentive of moisture. The dry weather must have delayed the growth of apples and possibly other tree fruits but they will resume growth with a more abundant water supply. The bad scab situation caused by so much moist, rainy weather in the spring continues, and susceptible varieties will show the effects even with a continued vigorous spray program. Other diseases and insects of tree fruits have not yet caused unusual damage.

"The peach crop will be good except in orchards in frost pockets. The apple crop is spotty, spring frosts having reduced or destroyed the crop in some orchards while others will produce a nearly normal crop. It is reported that the crop in Massachusetts will be about three times that of the very short crop of 1945 but still considerably below normal.

"Cultivated blueberries suffered from spring frosts and the dry weather, during which the berries did not grow well, and when the showers came there was much cracking in varieties susceptible to such injury. The crop will be below normal."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 692 August, 1946

Meteorological Observations

FOR

AUGUST

1946

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	69	11 A	58	8 P	63.5	79	0.8	n	167	14	1:30 P	7:30 P	.08	
2	66	1 P	55	11 P	60.5	80	0.5	n	199	18	12:30 A	1 A	.02	
3	79	5 P	52	5 A	65.5	64	14.0	w	128	15				
4	82	1 P	58	5 A	70.0	84	6.0	se	62	14	3:30 P	4 P	.02	
5	85	3 P	61	12 P	73.0	75	11.3	sw	109	12	6 A	6:30 A	.04	
6	86	3 P	56	6 A	71.0	71	9.3	w	34	9	11:30 P	12 P	.01	
7	68	0 A	60	8 P	64.0	93	0.0	nw	108	10	0 A	6:30 P	.73	
8	84	5 P	59	5 A	71.5	73	14.2	nw	119	14				
9	89	3 P	58	6 A	73.5	74	9.7	s	67	9				
10	79	5 P	66	12 P	72.5	92	2.8	se	155	10	9:30 A	11 A	.10	
11	79	3 P	59	12 P	69.0	74	13.2	w	117	14				
12	77	4 P	53	4 A	65.0	69	8.9	nw	39	10				
13	63	5 P	53	5 A	58.0	91	0.5	nw	64	13	11:30 A	11:30 P	.54	
14	65	4 P	56	1 A	60.5	93	2.2	w	59	6	10:30 A	9:30 P	.15	
15	78	4 P	52	2 A	65.0	80	9.0	s	50	10				
16	77	4 P	62	6 A	69.5	87	3.8	s	160	14	7 P	10 P	.55	
17	85	2 P	62	0 A	73.5	82	7.7	se	83	15	10 P	10:30 P	.04	
18	81	3 P	63	6 A	72.0	74	9.5	nw	99	8				
19	65	8 A	56	9 P	60.5	92	0.0	nw	112	12	9 A	2:30 P	.46	
20	79	2 P	52	6 A	65.5	78	10.7	w	78	10				
21	78	3 P	51	6 A	64.5	72	11.9	sw	61	9				
22	81	4 P	59	6 A	70.0	76	9.5	s	51	7				
23	74	2 P	60	6 A	67.0	87	7.0	nw	54	14	3 P	3:30 P	.88	
24	75	3 P	50	7 A	62.5	71	13.0	w	47	7				
25	76	4 P	46	6 A	61.0	75	11.6	n	71	9				
26	75	4 P	49	6 A	62.0	76	13.2	nw	89	9				
27	72	4 P	57	4 A	64.5	94	0.0	n	115	9	11:30 A	12 M	.02	
28	83	2 P	52	4 A	67.5	78	8.9	s	56	10				
29	83	3 P	55	12 P	69.0	80	6.0	s	124	18	4 P	8 P	.36	
30	70	4 P	46	6 A	58.0	67	13.0	nw	131	14				
31	75	4 P	45	6 A	60.0	73	10.8	sw	55	6				

* Based on least time required to blow one mile.

JOHN D. HILCHEY, *Observer*

MONTHLY SUMMARY

August, 1946		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.35, 15th	30.32	30.50, 1934
Minimum	29.66, 10th	29.61	28.87, 1930
Mean semi-daily	29.992	30.00	
Range	0.69	0.71	
Air Temperature, in degrees F.			
Highest	89, 9th	91.6	100, 1918
Lowest	45, 31st	43.4	34, 1940
Mean	66.1	68.6	62.4, 1903
Range	44	48.1	
Highest mean daily	73.5, 9th, 17th		
Lowest mean daily	58, 13th, 30th		
Mean maximum	76.7		
Mean minimum	55.5		
Greatest daily range	31, 9th, 28th		
Least daily range	8, 7th		
Precipitation, in inches			
Precipitation	4.00	4.08	8.40, 1928; .31, 1894
Snow	—		
Maximum precip. in 24 hrs.	0.88, 23rd		
Number of days with .01 or more	15	11	16, 1892, 1933; 4, 1899
Wind, in miles			
Total movement	2863	3127	4,271, 1910; 1,920, 1894
Greatest daily movement	199, 2nd		
Least daily movement	34, 6th		
Mean hourly velocity	3.8	4.2	
Maximum velocity	18, 2nd	22.7	40, 1941
Wind, direction			
Prevailing direction	W	SW	
North, days	4		
Northeast, days	0		
East, days	0		
Southeast, days	3		
South, days	6		
Southwest, days	3		
West, days	6		
Northwest, days	9		
Weather			
Mean relative humidity, percent	79.2	70.2	
Mean cloudiness, percent	67	49.7	67, 1901; 27, 1923
Number of clear days	11	9	23, 1941; 0, 1915, 1929
Number of fair days	10	13	25, 1912; 3, 1939
Number of cloudy days	10	9	18, 1901, '28; 2, 1910, '23
Number of hours bright sunshine	239	237	332, 1941; 152, 1915, 1929
Percent of possible hours of bright sunshine	55.7	55.2	
Thunder and lightning	23rd, 26th, 27th, 29th		
First frost	—	Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1945

REMARKS

August weather was colder than usual, with the total precipitation for the month only .08 inch less than normal.

The mean temperature was 66.1 degrees, while the normal for August is 68.6 degrees. This is the coldest August since 1934 when the mean temperature was 65.0 degrees. The record at this station for August is 62.4 degrees in 1903. The maximum temperature for the month was 89 degrees on the 9th, while the lowest was 45 degrees on the 31st.

The total precipitation was 4.00 inches compared to the normal for August of 4.08 inches. Rain fell on 15 days. There were 239 hours of sunshine, while the normal for August is 237 hours. There were no high winds during the month.

Dr. J. K. Shaw, research pomologist, gives the following report: "Rainfall continued to be ample during August and the effects of the dry period of June and July have disappeared. Vegetation has progressed normally. Temperatures seem rather low for August but no frosts have been reported. The apple crop will be larger than seemed possible at the time of the spring frosts though some low-lying orchards have a small crop or no crop at all. Scab on susceptible varieties will be severe. Conditions have not been favorable for good color development but abundant sunshine and cool nights may still favor color in later varieties. The peach crop is up to or above average."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 693 September 1946

Meteorological Observations

FOR

SEPTEMBER

1946

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature							Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean	Mean Relative Humidity	Number of Hours Bright Sunshine	Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	80	2 P	45	6 A	62.5	73	13.0	sw	77	10				
2	75	11 A	52	12 P	63.5	77	9.3	nw	117	12				
3	72	4 P	46	12 P	59.0	66	10.5	nw	85	9				
4	73	3 P	42	6 A	57.5	67	11.2	nw	92	9				
5	74	4 P	44	6 A	59.0	68	11.8	ne	92	11				
6	75	2 P	52	1 A	63.5	76	11.5	s	77	9				
7	82	4 P	57	0 A	69.5	83	9.4	se	100	8				
8	81	1 P	61	12 P	71.0	81	4.5	e	79	8	8 P	12 P	.84	
9	76	5 P	60	3 A	68.0	97	0.0	se	54	6	0 A	3:30 A	.37	
10	83	3 P	69	8 A	76.0	93	1.5	se	148	18			T	
11	73	1 A	52	12 P	62.5	77	6.0	sw	165	20	12:30 A	2 A	.13	
12	66	2 P	44	12 P	55.0	68	7.1	nw	91	10				
13	65	3 P	40	6 A	52.5	67	12.1	ne	141	17				
14	70	2 P	37	6 A	53.5	68	12.6	ne	113	11				
15	75	3 P	42	6 A	58.5	75	12.5	nw	76	14				
16	79	4 P	42	6 A	60.5	74	12.3	w	23	4				
17	83	3 P	50	6 A	66.5	81	11.4	w	40	10				
18	84	3 P	55	6 A	69.5	82	11.9	sw	30	6				
19	86	4 P	59	12 P	72.5	77	9.1	n	48	6			T	
20	86	3 P	53	6 A	69.5	71	11.2	sw	32	8				
21	71	2 P	55	6 A	63.0	90	1.2	sw	41	9	2 P	12 P	.10	
22	79	2 P	63	2 A	71.0	85	6.0	n	76	6	0 A	3 A	.18	
23	74	4 P	63	2 A	68.5	89	3.1	e	47	9				
24	70	3 P	64	6 A	67.0	93	0.0	e	113	11	2:30 P	12 P	1.40	
25	80	3 P	58	12 P	69.0	72	8.8	nw	77	12	0 A	12:30 A	.01	
26	76	4 P	48	7 A	62.0	69	11.8	w	48	4				
27	80	4 P	46	7 A	63.0	71	11.0	w	37	10				
28	77	4 P	53	5 A	65.0	89	5.8	se	52	8			T	
29	72	4 P	57	2 A	64.5	85	5.4	se	85	9				
30	66	7 A	41	11 P	53.5	88	0.0	nw	173	22	12:30 A	12 P	1.85	

* Based on least time required to blow one mile.

JOHN D. HILCHEY, *Observer*

MONTHLY SUMMARY

September, 1946		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.48, 13th	30.45	30.65, 1924
Minimum	29.50, 30th	29.57	28.41, 1938
Mean semi-daily	30.136	30.06	
Range	0.98	.88	1.99, 1938; .57, 1910
Air Temperature, in degrees F.			
Highest	86, 19th, 20th	87.7	97, 1895, 1929
Lowest	37, 14th	33.2	24.5, 1914
Mean	63.9	61.7	
Range	49	54.5	
Highest mean daily	76, 10th		
Lowest mean daily	52.5, 13th		
Mean maximum	76.1		
Mean minimum	51.7		
Greatest daily range	37, 16th		
Least daily range	6, 24th		
Precipitation, in inches			
Precipitation	4.88	4.24	14.55, 1938; .52, 1914
Snow	—		
Maximum precip, in 24 hrs.	1.85, 30th		
Number of days with .01 or more	8	10	16, 1933; 3, 1903
Wind, in miles			
Total movement	2429	3271	4.686, 1896; 1,414, 1894
Greatest daily movement	173, 30th		
Least daily movement	23, 16th		
Mean hourly velocity	3.4	4.5	
Maximum velocity	22, 30th	25.9	80, 1938
Wind, direction			
Prevailing direction	W	WSW	
North, days	2		
Northeast, days	3		
East, days	3		
Southeast, days	5		
South, days	1		
Southwest, days	5		
West, days	4		
Northwest, days	7		
Weather			
Mean relative humidity, percent	78.4	73.6	
Mean cloudiness, percent	44	49.9	70, 1934; 27, 1908, 1914
Number of clear days	18	10	19, 1932; 2, 1907, 1928
Number of fair days	6	10	19, 1908; 3, 1889
Number of cloudy days	6	10	20, 1934; 3, 1941
Number of hours bright sunshine	242	201	255, 1916; 106, 1934
Percent of possible hours of bright sunshine	64.9	54.9	
Thunder and lightning	30th		
First frost	—	Sept. 21	Oct. 13; Aug. 22

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1945.

REMARKS

September weather was warmer than usual, with a little more sunshine, humidity and rainfall than normal.

The mean temperature for the month was 63.9 degrees compared to the normal for September of 61.7 degrees. The highest temperature was 86 degrees on the 19th and 20th. The lowest was 37 degrees on the 14th and consequently no frosts occurred in September this year. Also no frosts were recorded in September last year. The normal date for first frost at this station is September 21.

The domestic heating load for the month was 90 degree-days compared to the normal for September of 149 degree-days.

The total rainfall for the month was 4.88 inches, while the normal is 4.24 inches. Most of the precipitation fell in three storms: 1.21 inches on the 8th and 9th, 1.40 inches on the 24th, and 1.85 inches on the 30th. There were 242 hours of bright sunshine while the normal is 201 hours. The mean relative humidity was 78.4 percent, the normal for September being 73.6 percent.

Dr. J. K. Shaw, research pomologist, reports as follows: "There is nothing extraordinary to report about the weather and crops in September. Progress was normal. A good peach crop was harvested from our orchards and others in good locations. Our apple crop is poor in the orchards on lower elevations but good in the better located orchards. McIntosh suffered from the early freezes and probably cool weather following bloom interfered with the set of fruit, but not as much as it did in 1945. The unseasonably warm weather in March, followed by cold which killed many fruit buds, threatened ruin but still most orchards came through with fair to good crops. Injury was severe to total in orchards in frosty locations."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 694 October 1946

Meteorological Observations

FOR

OCTOBER

1946

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature				Mean	Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time				Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	50	1 P	39	11 A	44.5	67	0.2	sw	283	25	0 A	7:30 A	.11	
2	48	2 P	36	12 P	42.0	69	1.3	sw	168	13				
3	69	4 P	32	7 A	50.5	74	11.7	w	44	6			T	
4	77	3 P	38	6 A	57.5	82	11.6	sw	27	2			T	
5	81	3 P	44	5 A	62.5	83	8.3	sw	35	3			T	
6	84	2 P	47	3 A	65.5	85	7.9	sw	24	2			T	
7	84	3 P	45	6 A	64.5	78	11.5	se	33	4				
8	59	4 P	41	12 P	50.0	72	0.2	ne	93	15				
9	63	3 P	34	5 A	48.5	68	6.6	sw	47	4				
10	66	3 P	42	12 P	54.0	76	8.0	w	51	5			T	
11	70	3 P	38	6 A	54.0	73	8.7	w	32	5				
12	75	2 P	53	12 P	64.0	88	0.6	se	189	14	3 P	12 P	.55	
13	61	2 P	45	12 P	53.0	56	11.2	nw	225	15	0 A	1 A	.07	
14	62	3 P	33	7 A	47.5	64	10.3	nw	104	10				
15	66	3 P	37	7 A	51.5	74	8.2	sw	32	3				
16	69	2 P	34	7 A	51.5	71	9.3	se	83	11				
17	71	3 P	48	7 A	59.5	74	2.6	se	134	10			T	
18	60	9 P	47	6 A	53.5	88	0.0	se	123	13	1 P	5 P	.58	
19	59	0 A	40	12 P	49.5	63	11.0	w	179	28				
20	51	1 P	32	7 A	41.5	68	6.7	nw	104	7				
21	61	3 P	34	7 A	47.5	75	7.6	sw	28	3				
22	65	4 P	28	7 A	46.5	76	10.8	sw	24	2				
23	69	4 P	30	6 A	49.5	77	10.8	se	27	2				
24	68	4 P	35	7 A	51.5	76	6.4	sw	30	4				
25	70	3 P	44	4 A	57.0	76	6.7	se	113	13				
26	64	4 P	54	12 P	59.0	92	2.3	nw	102	15	9:30 A	12 M	.19	
27	75	2 P	51	6 A	63.0	89	5.0	w	30	8	8 A	8:30 A	.01	
28	62	1 P	48	7 A	55.0	79	0.9	nw	54	8			T	
29	74	2 P	56	0 A	65.0	74	3.6	s	172	13			T	
30	80	3 P	60	7 A	70.0	74	4.9	s	105	7				
31	76	11 A	55	12 P	65.5	57	5.1	w	219	28				

* Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

October, 1946		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.56, 28th	30.53	30.68, 1929
Minimum	29.46, 18th	29.42	29.00, 1926
Mean semi-daily	.30.114	30.06	
Range	1.10	1.11	1.47, 1926, .76, 1899
Air Temperature, in degrees F.			
Highest	84, 6th, 7th	79.4	90.5, 1908
Lowest	28, 22nd	23.4	17, 1936
Mean	54.7	50.5	56.4, 1920; 43.2, 1890
Range	56	56.0	
Highest mean daily	70, 30th		
Lowest mean daily	41.5, 20th		
Mean maximum	67.4		
Mean minimum	41.9		
Greatest daily range	39, 4th, 7th, 23rd		
Least daily range	10, 26th		
Precipitation, in inches			
Precipitation	1.51	3.29	8.81, 1911; .01, 1924
Snow	—		
Maximum precip. in 24 hrs.	0.62, 12th, 13th		
Number of days with .01 or more	6	9	15, 1913; 1, 1897, 1924
Wind, in miles			
Total movement	2914	4074	5,467, 1910; 2,540, 1894
Greatest daily movement	283, 1st		
Least daily movement	24, 6th, 24th		
Mean hourly velocity	3.9	5.4	
Maximum velocity	28, 19th, 31st	29.5	42, 1937
Wind, direction			
Prevailing direction	SW	W	
North, days	0		
Northeast, days	1		
East, days	0		
Southeast, days	7		
South, days	2		
Southwest, days	10		
West, days	6		
Northwest, days	5		
Weather			
Mean relative humidity, percent	74.8	69.0	
Mean cloudiness, percent	49	48	67, 1932; 18, 1924
Number of clear days	13	10	21, 1938; 1, 1911
Number of fair days	10	10	17, 1924; 3, 1938
Number of cloudy days	8	11	19, 1896; 3, 1924
Number of hours bright sunshine	200	175.0	232, '23, '38, 91, 1913
Percent of possible hours of bright sunshine	58.7	51.3	
Thunder and lightning	—		
First frost	Oct. 22	Sept. 21	Aug. 22, '94, '95; Oct. 15, '39

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1945

REMARKS

The weather during October was warm and dry, and had very little wind. The mean temperature was 54.7 degrees compared to a normal of 50.5 degrees. During the first half of the month the temperature was near normal but was well above normal in the second half. While the mean temperature was considerably above normal, this record was exceeded in 1900, 1913, 1920 and 1938. In 1920 the mean temperature for October was 56.4 degrees. The highest temperature in October this year was 84 degrees on the 6th and 7th. The lowest temperature was 28 degrees on the 22nd. This was the first frost of the season, although there was light frost earlier in nearby locations. At the end of the month there has not been a killing frost. The normal date for the first frost is September 21.

The domestic heating load for the month was 326 degree-days. The total heating load for September and October is 416 degree-days while the normal for this period is 605 degree-days.

The total precipitation for the month was 1.51 inches, which is 1.78 inches less than the normal for October.

The total wind movement was only 2914 miles for the month, while the normal is 4074 miles. Only twice since 1889 has there been less wind in October.

Dr. J. K. Shaw, research pomologist, gives the following final report on the crop season of 1946: "The crop season of 1946 may be said to end with October. In many ways it was remarkably like that of 1945. The weather was unseasonably warm in late winter and early spring, then cooler with killing temperatures followed by seasonable temperatures for the rest of the summer. Rainfall was low in March and early April both years and again in June and July, followed by more adequate amounts ending with dry Octobers. For three successive years the fruit crop has been injured more or less severely by spring killing of fruit buds. The writer remembers only one spring in the previous 38 years when severe killing occurred in Massachusetts. Three frosty years in succession sets a record that will not be equaled for a long time. If we get frost damage in 1947 it will be most remarkable.

"Apple scab caused much damage to scab susceptible varieties in both years because of wet weather in May and June. The carryover of the disease on fallen leaves is heavy. Unless we have a dry May and June in 1947, a most thorough and skillful control program will be necessary to control the disease."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 695 November 1946

Meteorological Observations

FOR

NOVEMBER

1946

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature				Mean	Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time				Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	64	3 P	41	7 A	52.5	61	8.1	w	142	20				
2	54	3 P	47	4 A	50.5	69	0.0	e	69	7				
3	56	4 P	48	3 A	52.0	89	0.0	nw	95	5			T	
4	68	1 P	49	12 P	58.5	74	3.0	w	154	22				
5	49	0 A	39	10 P	44.0	41	8.4	w	397	30				
6	52	4 P	32	7 A	42.0	47	10.1	sw	219	20				
7	59	3 P	41	7 A	50.0	60	3.5	sw	110	18				
8	50	6 P	44	12 P	47.0	92	0.0	w	40	5	2:30 A	8:30 P	.34	
9	54	1 P	40	3 A	47.0	68	0.5	w	133	17				
10	54	3 P	33	7 A	43.5	76	5.2	s	88	9			T	
11	58	12 P	50	0 A	54.0	87	0.0	se	150	13	5 P	10 P	.10	
12	59	1 A	38	12 P	48.5	57	7.5	nw	264	25	1 A	3 A	.13	
13	49	3 P	28	7 A	38.5	63	9.9	nw	114	14				
14	50	1 P	32	1 A	41.0	74	1.6	nw	134	25				T
15	45	2 P	28	12 P	36.5	61	9.8	nw	191	18				
16	50	2 P	20	7 A	35.0	75	9.8	e	61	6				
17	53	1 P	40	12 P	46.5	72	0.0	se	198	18				
18	42	2 P	23	12 P	32.5	51	7.7	nw	205	17				
19	49	3 P	19	7 A	34.0	76	9.6	e	56	6				
20	45	4 P	23	5 A	34.0	93	2.2	w	44	7				
21	55	3 P	27	7 A	41.0	82	9.6	sw	34	7				
22	54	3 P	34	12 P	44.0	83	0.0	w	101	22	8:30 A	12:30P	.11	
23	35	3 P	27	7 A	31.0	51	3.2	w	116	22				
24	39	4 P	24	7 A	31.5	63	0.3	se	151	13				T
25	62	2 P	38	1 A	50.0	68	0.7	se	220	13			T	
26	61	12 P	50	6 A	55.5	87	0.0	se	139	11			T	
27	61	0 A	38	8 A	49.5	65	9.4	w	164	22	9:30 P	11:30P	.02	
28	43	0 A	35	9 P	39.0	54	1.8	w	255	28				
29	46	1 P	28	12 P	37.0	52	4.1	nw	253	25			T	
30	35	4 P	25	8 A	30.0	74	0.0	se	61	9				T

* Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

November, 1946		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.66, 18th	30.59	30.87, 1932
Minimum	29.60, 8th	29.30	28.73, 1904
Mean semi-daily	30.081	30.05	
Range	1.06	1.29	1.84, 1904; .89, 1943
Air Temperature, in degrees F.			
Highest	68, 4th	66.0	75, 1924, 1938
Lowest	19, 19th	12.9	–4, 1938
Mean	43.2	38.9	44.1, 1931; 33.6, 1901
Range	49	53.0	
Highest mean daily	58.5, 4th		
Lowest mean daily	30.0, 30th		
Mean maximum	51.7		
Mean minimum	34.7		
Greatest daily range	30, 16th, 19th		
Least daily range	6, 8th		
Precipitation, in inches			
Precipitation	.70	3.41	8.64, 1927; .63, 1917
Snow	Trace	2.34	13.50, 1938
Maximum precip. in 24 hrs.	0.34, 8th		
Number of days with .01 or more	5	9	22, 1921; 2, 1904
Wind, in miles			
Total movement	4358	4531	5,978, 1906; 2,589, 1889
Greatest daily movement	397, 5th		
Least daily movement	34, 21st		
Mean hourly velocity	6.1	6.3	
Maximum velocity	30, 5th	30.3	44, 1938
Wind, direction			
Prevailing direction	WSW	WNW	
North, days	0		
Northeast, days	0		
East, days	3		
Southeast, days	6		
South, days	1		
Southwest, days	3		
West, days	10		
Northwest, days	7		
Weather			
Mean relative humidity, percent	68.8	70.6	
Mean cloudiness, percent	57	55.1	72, 1900, 1927; 34, 1917
Number of clear days	11	6	15, 1903; 1, 1900, 1911, 1927
Number of fair days	5	9	16, ’12; 4. ’89, ’30, ’32, ’35
Number of cloudy days	14	15	24,1927; 9, 1905, 1917
Number of hours bright sunshine	126	121	182, 1903; 66, 1927
Percent of possible hours of bright sunshine	43	41.3	
Thunder and lightning	—		
First frost	13th	Nov. 6	Oct. 10, ’25; Dec. 13, 1941

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1945

REMARKS

The weather during November was warm and dry. The mean temperature for the month was 43.2 degrees while the normal mean temperature for November is 38.9 degrees. This high mean temperature for November has been exceeded only three times since 1889, in 1927, 1931 and 1935. The highest temperature was 68 degrees on the 4th and the lowest 19 degrees on the 19th. The first frost of the season was on the 13th. The domestic heating load was 654 degree-days compared to a normal of 784 degree-days. The total heating load to the end of November is 1070 degree-days while the normal for that period is 1389 degree-days.

The total precipitation during the month was .70 inches. Only once has there been less precipitation in November since 1889. This was in 1917 when the total precipitation for November was .63 inches. The normal for November is 3.41 inches. No snow fell during the month whereas the normal snowfall for November is 2.34 inches. The normal date for the first snow is November 6.

There were 126 hours of bright sunshine, the normal being 121 hours.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 696 December 1946

Meteorological Observations

FOR

DECEMBER

1946

C. I. GUNNESS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature				Mean	Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time				Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	53	11 A	33	0 A	43.0	73	0.0	w	193	22				T
2	34	0 A	12	12 P	23.0	50	6.0	nw	435	32				
3	35	3 P	11	3 A	23.0	48	9.3	s	126	10				
4	39	4 P	23	7 A	31.0	57	2.0	s	142	11				
5	40	3 P	27	4 A	33.5	68	0.1	s	75	7				
6	40	1 P	26	6 A	33.0	74	6.0	n	84	11				
7	48	2 P	27	8 A	37.5	74	0.0	se	61	7				
8	45	3 P	26	7 A	35.5	84	1.3	nw	39	7				
9	47	3 P	37	0 A	42.0	86	0.0	se	58	8			T	
10	63	3 P	41	6 A	52.0	73	3.0	s	133	13				
11	56	0 A	26	12 P	41.0	47	9.1	w	289	28				
12	52	12 P	23	5 A	37.5	85	0.0	se	59	10	11 A	2:30 P	.16	
13	57	3 A	27	12 P	42.0	55	5.8	w	242	28	7:30 A	8 A	.03	
14	30	12 M	22	12 P	26.0	42	2.5	nw	298	28				
15	33	1 P	20	7 A	26.5	42	4.7	nw	226	20				
16	29	3 P	16	11 P	22.5	45	9.0	nw	164	18				
17	38	12 P	17	0 A	27.5	86	0.0	n	50	8	2 A	1 P	.11	1.0
18	38	0 A	20	12 P	29.0	58	0.2	n	126	11				
19	32	1 P	13	6 A	22.5	73	4.5	n	49	7				
20	29	12 P	11	2 A	20.0	84	0.0	n	32	5	7 P	12 P	.50	5.0
21	35	2 P	29	0 A	32.0	96	0.0	nw	158	17	0 A	4 P	1.39	0.5
22	37	2 P	30	12 P	33.5	67	1.0	w	340	32				
23	43	1 P	25	6 A	34.0	65	1.2	s	209	20				
24	47	1 P	33	11 P	40.0	54	9.0	sw	167	12				
25	35	0 A	20	12 P	27.5	56	4.8	nw	258	32				
26	35	9 A	7	12 P	21.0	65	6.4	nw	312	35				
27	28	1 P	2	4 A	15.0	60	6.0	s	100	20	11 P	12 P	.05	0.5
28	21	8 A	15	4 P	18.0	93	0.0	ne	140	11	0 A	12 P	.77	3.5
29	30	12 P	18	0 A	24.0	96	0.0	n	87	25	0 A	4:30 P	.50	T
30	33	3 A	8	12 P	20.5	67	9.2	n	257	22				
31	26	3 P	1	7 A	13.5	78	1.9	nw	18	4				

* Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

December, 1946		Normal	Extremes
Barometer, in inches			
(Readings reduced to sea level)			
Maximum	30.59, 31st	30.66	30.96, 1889
Minimum	29.30, 13th	29.27	28.85, 1915
Mean semi-daily	30.033	30.06	
Range	1.29	1.38	1.78, 1895; 1.01, 1892
Air Temperature, in degrees F.			
Highest	63, 10th	54.3	65.5, 1908
Lowest	1, 31st	–1.9	–22.5, 1917
Mean	29.9	27.5	36.9, 1891; 17.1, 1917
Range	62	56.2	
Highest mean daily	52, 10th		
Lowest mean daily	13.5, 31st		
Mean maximum	39.0		
Mean minimum	20.8		
Greatest daily range	30, 11th. 13th		
Least daily range	6, 21st, 28th		
Precipitation, in inches			
Precipitation	3.51	3.39	7.77, 1901; .58, 1943
Snow	10.50	8.50	26.50, '02; t, 1891, 1943
Maximum precip. in 24 hrs.	1.89, 20th, 21st		
Number of days with .01 or more	8	10	17, 1902; 4, 1892, 1943
Wind, in miles			
Total movement	4937	4710	6,694, 1925; 3,239, 1918
Greatest daily movement	435, 2nd		
Least daily movement	18, 31st		
Mean hourly velocity	6.6	6.3	
Maximum velocity	35, 26th	31.4	48, 1938, 1943, 1944
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	7		
Northeast, days	1		
East, days	0		
Southeast, days	3		
South, days	6		
Southwest, days	1		
West, days	4		
Northwest, days	9		
Weather			
Mean relative humidity, percent	67.8	69.4	
Mean cloudiness, percent	55	54.9	71, 1929; 39, 1919
Number of clear days	6	8	15, 1890; 2, 1922, 1933
Number of fair days	8	9	16,'09;4,'89,'30,'31,'36,'38
Number of cloudy days	17	14	23, '33; 7, '09, '23
Number of hours bright sunshine	103	128	172, 1896; 63, 1933
Percent of possible hours of bright sunshine	36.4		
Thunder and lightning	—		
First snow	Dec. 17	45.2	

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1945.

ANNUAL SUMMARY

Annual, 1946		Normal	Extremes
Barometer, in inches			
(Readings reduced to sea level)			
Maximum	30.70, Jan. 20	30.81	31.05, 1920, 1943
Minimum	29.23, Feb. 14	28.95	28.41, 1938
Mean semi-daily	30.046	30.01	
Range	1.47	1.85	2.47, 1938; 1.38, 1933
Air Temperature, in degrees F.			
Highest	95, July 19	95.7	104, 1911
Lowest	—8, Jan. 28, Feb. 4	–12.2	–26, 1904
Mean	48.7	47.4	49.8, 1921; 44, 1904
Range	103	107.8	
Highest mean daily	81.5, July 20		
Lowest mean daily	6.0, Jan. 20		
Mean maximum	59.7	57.8	
Mean minimum	37.6	36.5	
Greatest daily range	43, Apr. 23		
Least daily range	4, Mar. 2		
Precipitation, in inches			
Precipitation	38.61	43.70	59.00, 1938; 30.68, 1908
Snow	50.60	47.78	89.00, 1893; 24.50, 1919
Maximum precip. in 24 hrs.	3.46, July 23rd		
Number of days with .01 or more	111	124	146, 1945; 96, 1924
Wind, in miles			
Total movement	48,381	52,223	63.571, 1908; 36,257, 1894
Greatest daily movement	499, Feb. 21		
Least daily movement	9, Jan. 17		
Mean hourly velocity	5.5	5.8	
Maximum velocity	50, Feb. 20	39.5	80, 1938
Wind, direction			
Prevailing direction	WSW	W	
North, days	23		
Northeast, days	7		
East, days	12		
Southeast, days	81		
South, days	32		
Southwest, days	39		
West, days	78		
Northwest, days	93		
Weather			
Mean relative humidity, percent	68.1	67.6	
Mean cloudiness, percent	51.6	51.7	60, '98, '01, '02; 41, '08, '24
Number of clear days	166	116	217, 1941; 59, 1927
Number of fair days	97	123	182, 1912; 64, 1936
Number of cloudy days	102	126	179, '01, '02; 71, 1910, 1941
Number of hours bright sunshine	2642	2,353	3038, 1941; 1864, 1902
Percent of possible hours of bright sunshine	59.3	52.8	
Last snow	Apr. 8	April 15	Mar. 14,'10; May 11,'07,'45
First snow	Dec. 17	Nov. 6	Oct. 10, '25; Dec. 13, '41
Last frost	May 4	May 14	Apr. 14, '43; June 8, '32
First frost	Oct. 22	Sept. 21	Aug. 22,'94,'95; Oct. 13,'09

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 697 January, 1947

Meteorological Observations

FOR

JANUARY

1947

M. J. MARKUSON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature				Mean	Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time				Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	19	4 P	10	8 A	14.5	73	0.2	n	70	25	7:30 P	12 P	.65	2.5
2	30	12 P	15	0 A	22.5	94	0.0	n	237	28	0 A	2 P	.24	0.5
3	34	9 P	30	0 A	32.0	98	0.0	n	145	4	8:30 A	6 P	.17	
4	32	0 A	14	12 P	23.0	73	9.2	nw	120	13				
5	32	1 P	8	7 A	20.0	69	5.0	se	62	8				
6	31	3 P	10	12 P	20.5	64	7.0	nw	159	14				T
7	37	8 P	5	5 A	21.0	74	1.6	se	97	12				
8	37	1 A	24	12 P	30.5	64	7.6	w	283	25			T	T
9	24	0 A	7	12 P	15.5	51	9.3	w	235	28				
10	26	1 P	–1	7 A	12.5	67	5.0	s	118	18				
11	42	3 P	19	0 A	30.5	65	0.2	s	184	13				
12	43	4 A	16	12 P	29.5	45	7.0	n	221	22				
13	25	3 P	9	7 A	17.0	57	5.3	n	109	11				
14	32	3 P	24	0 A	28.0	91	0.0	n	50	6	8:30 A	12 P	.14	
15	36	2 P	32	0 A	34.0	97	0.0	nw	7	4	2 A	8 P	.31	
16	38	4 P	34	9 A	36.0	97	0.0	nw	40	8				
17	40	3 P	27	8 A	33.5	50	5.6	nw	181	28				
18	42	1 P	23	12 P	32.5	48	0.0	w	206	20				
19	29	6 P	10	8 A	19.5	63	4.0	nw	60	13				
20	45	12 P	25	0 A	35.0	97	0.0	nw	35	5	5:30 A	6 P	.84	
21	45	0 A	17	12 P	31.0	66	4.0	w	261	32			T	T
22	17	0 A	9	9 A	13.0	52	8.6	w	332	28				
23	24	12 P	11	8 A	17.5	54	2.8	s	83	8				
24	45	2 P	24	0 A	34.5	67	3.5	se	130	9			T	T
25	45	11 A	26	11 P	35.5	70	2.9	n	133	18				
26	38	12 P	20	8 A	29.0	81	2.2	nw	11	2	11:30 P	12 P	.01	
27	47	3 P	28	12 P	37.5	87	6.0	n	65	7	0 A	7:30 A	.44	
28	53	3 P	26	7 A	39.5	67	9.1	nw	57	17				
29	35	0 A	28	5 A	31.5	70	0.0	n	50	10				
30	44	12 P	30	0 A	37.0	92	0.0	n	28	5	6 P	12 P	.08	
31	55	1 P	34	12 P	44.5	69	5.9	nw	105	25	0 A	6 A	.49	

* Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

January, 1947		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.89, 1st	30.70	31.00, 1927
Minimum	29.19, 20th	29.20	28.55, 1913
Mean semi-daily	30.037	30.07	
Range	1.70	1.50	2.18, 1913; 0.97, 1896
Air Temperature, in degrees F.			
Highest	55, 31st	51.1	66.0, 1932
Lowest	–1, 10th	–7.1	–26.0, 1904
Mean	27.7	24.2	34.2, 1913; 13.9, 1918
Range	56	58.2	
Highest mean daily	44.5, 31st		
Lowest mean daily	12.5, 10th		
Mean maximum	36.2		
Mean minimum	19.2		
Greatest daily range	32, 7th		
Least daily range	4, 3rd, 15th, 16th		
Precipitation, in inches			
Precipitation	3.37	3.61	7.15, 1898; 1.07, 1896
Snow	3.0	13.32	33, 1898, 1923; 1.50, '08
Maximum precip. in 24 hrs.	0.84, 20th		
Number of days with .01 or more	10	11	15, '93, '20; 4, 1901
Wind, in miles			
Total movement	3874	5055	7770, 1908; 2896, 1895
Greatest daily movement	332, 22nd		
Least daily movement	7, 15th		
Mean hourly velocity	5.2	6.8	
Maximum velocity	32, 21st	32.7	47, 1938
Wind, direction			
Prevailing direction	NW	WNW	
North, days	10		
Northeast, days	0		
East, days	0		
Southeast, days	3		
South, days	3		
Southwest, days	0		
West, days	5		
Northwest, days	10		
Weather			
Mean relative humidity, percent	71.3	70.1	
Mean cloudiness, percent	56	55	78, 1932; 37, 1908
Number of clear days	7	9	20, 1944; 2, 1914
Number of fair days	9	9	18, 1890, 1926; 3, 1916, 1944
Number of cloudy days	15	13	22, 1923, 1931; 4, 1920, 1939
Number of hours bright sunshine	112	137	214, 1920; 74, 1932
Percent of possible hours of bright sunshine	38.1	46.7	
Thunder and lightning	—		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1946.

REMARKS

The weather during January was much warmer than normal with very little snow. The mean temperature was 27.7 degrees, which is 3.5 degrees higher than the normal for January. This was the warmest January since 1937 which had a mean temperature of 31.7 degrees. Last year the mean temperature for January was 23.2 degrees. Thus far, this has been the warmest winter since 1931-1932. The highest temperature this January was 55 degrees on the 31st while the lowest was −1 degree on the 10th and this is the lowest reading so far this winter.

The domestic heating load for January was 1157 degree-days as compared to the normal of 1265 degree-days. The total heating load from September 1 to January 31 is now 3315 degree-days as compared to the normal of 3817 degree-days for this same period.

The snowfall for January was 3.0 inches while the normal for January is 13.32 inches. The total snowfall for this winter has now reached 13.5 inches. The normal for this same period is 24.16 inches. The total precipitation for January was 3.37 inches which is slightly under the normal of 3.61 inches. There were 112 hours of bright sunshine as compared to a normal of 137 hours. High winds occurred on the 21st when a maximum of 32 miles per hour was reached.

MASS. STATE COLLEGE
AMHERST, MASS. 3 46

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 698 February, 1947

Meteorological Observations

FOR

FEBRUARY

1947

M. J. MARKUSON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	35	2 P	22	12 P	28.5	50	10.0	nw	236	20				
2	28	3 P	19	12 P	23.5	55	5.8	w	153	18				
3	37	3 P	13	7 A	25.0	48	9.0	s	143	15				
4	50	7 P	19	12 P	34.5	78	0.5	se	124	25	1 P	10 P	.75	
5	19	1 A	10	12 P	14.5	56	6.1	nw	293	22	6 A	10 A	.03	1.5
6	19	3 P	6	7 A	12.5	54	2.7	sw	135	13				
7	30	5 P	15	1 A	22.5	77	1.6	nw	15	5	4 A	3 P	.05	1.0
8	28	12 M	10	12 P	19.0	76	0.0	nw	169	17	4 A	5 P	.50	7.0
9	22	12 M	4	3 A	13.0	53	4.6	w	239	32				
10	33	2 P	19	0 A	26.0	66	7.3	nw	373	32				
11	33	3 P	18	10 P	25.5	49	10.0	nw	412	25				
12	32	1 P	11	7 A	21.5	45	10.4	n	157	15				
13	36	3 P	9	5 A	22.5	55	4.7	nw	49	8				
14	48	3 P	21	7 A	34.5	61	6.7	s	86	9				
15	40	4 P	31	7 A	35.5	78	0.0	s	65	7				
16	43	1 P	31	12 P	37.0	67	0.8	nw	209	25				
17	35	3 P	26	7 A	30.5	46	2.1	nw	435	28				
18	48	4 P	19	6 A	33.5	51	10.5	w	109	11				
19	27	0 A	12	12 P	19.5	44	10.7	nw	260	28				
20	22	4 P	4	6 A	13.0	45	6.7	n	201	18	9:30 P	12 P	.04	1.0
21	17	2 P	8	12 P	12.5	82	0.5	nw	327	25	0 A	7 P	.59	7.5
22	21	3 P	8	0 A	14.5	59	5.6	nw	306	28				
23	29	2 P	11	12 P	20.0	54	9.6	nw	169	18				
24	33	3 P	5	3 A	19.0	59	7.0	s	136	11				
25	37	2 P	19	9 A	28.0	60	1.9	nw	207	20				
26	35	2 P	28	11 P	31.5	61	3.2	nw	298	25			T	T
27	31	3 P	25	7 A	28.0	58	1.3	nw	294	28				
28	32	3 P	20	12 P	26.0	61	4.7	nw	262	22			T	T

* Based on least time required to blow one mile.

Fernand E. Bartlett, *Observer*

MONTHLY SUMMARY

February, 1947		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.44, 12th	30.63	31.05, 1920
Minimum	29.15, 22nd	29.24	28.56, 1895
Mean semi-daily	29.729	30.04	
Range	1.29	1.38	1.89, '00, '08; .88, '13, '31
Air Temperature, in degrees F.			
Highest	50, 4th	50.5	65.0, 1930
Lowest	-4, 9th, 20th	-7.4	-23, 1943
Mean	24.0	23.7	
Range	36	58	
Highest mean daily	37, 16th		
Lowest mean daily	12.5, 21st		
Mean maximum	32.1	32.8	
Mean minimum	15.8	14.5	
Greatest daily range	31, 4th		
Least daily range	6, 27th		
Precipitation, in inches			
Precipitation	1.96	3.19	8.12, 1900; 0.62, 1901
Snow	18.0	13.99	48.75, 1893; 0.50, 1937
Maximum precip. in 24 hrs.	0.75, 4th		
Number of days with .01 or more	6	10	15, '93, '20; 4, 1901
Wind, in miles			
Total movement	5862	4776	6445, 1896; 3438, 1892
Greatest daily movement	435, 17th		
Least daily movement	15, 7th		
Mean hourly velocity	8.7	7.1	
Maximum velocity	32, 9th, 10th	31.7	50, 1946
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	2		
Northeast, days	0		
East, days	0		
Southeast, days	1		
South, days	4		
Southwest, days	1		
West, days	3		
Northwest, days	17		
Weather			
Mean relative humidity, percent	58.9	66.6	
Mean cloudiness, percent	58	50.9	66, '90, '27; 31, 1905
Number of clear days	8	10	19, 1941; 2, 1927
Number of fair days	9	8	16, 1920; 2, 1936
Number of cloudy days	11	10	16, 1894; 2, 1920
Number of hours of bright sunshine	144	158	221, 1924; 110, '27, '38
Percent of possible hours of bright sunshine	48.6	53.4	
Thunder and lightning	4th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1946.

REMARKS

The weather for February was near normal. The mean temperature for the month was 24.0 degrees as compared to the normal of 23.7 degrees. The highest temperature during the month was 50 degrees on the 4th and the lowest, 4 degrees on the 9th and 20th. The lowest temperature for the winter still stands at –1 degree on Jaunary 10. The domestic heating load for the month was 1148 degree-days, while the normal for February is 1165 degree-days. The total heating load for the period September 1 to February 28 inclusive is now 4463 degree-days compared to the normal of 4982 degree-days for this period.

A total of 18 inches of snow was recorded during the month, with 16.5 inches of this amount falling in two storms. The total snowfall for this winter season is now 31.50 inches, while the normal for the period is 38.15 inches.

There were only six days of precipitation during the month. The total hours of sunshine was 144, while the normal is 158 hours. The total wind movement for the month was higher than normal.

MASS. STATE COLLEGE
AMHERST, MASS. 3 46

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 699 March 1947

Meteorological Observations

FOR

MARCH

1947

M. J. MARKUSON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	37	3 P	11	7 A	24.0	74	8.4	w	55	6				
2	37	9 P	28	5 A	32.5	90	0.0	nw	185	30	0 A	12 P	1.72	3.00
3	37	1 A	28	12 P	32.5	73	0.0	sw	368	45	0 A	8 A	.14	T
4	32	1 P	24	7 A	28.0	68	1.6	sw	211	13				T
5	38	5 P	25	7 A	31.5	63	7.6	w	243	25				
6	42	1 P	32	7 A	37.0	63	7.8	nw	205	20				
7	40	12 M	28	12 P	34.0	61	6.2	w	176	15				
8	39	5 P	20	7 A	29.5	63	9.1	n	100	13				
9	41	3 P	27	7 A	34.0	58	11.6	n	218	18				
10	44	2 P	28	7 A	36.0	65	8.6	n	215	14				
11	43	1 P	31	7 A	37.0	79	3.8	n	126	10				T
12	50	5 P	29	7 A	39.5	61	11.7	n	70	10				
13	53	3 P	23	6 A	38.0	64	11.8	s	111	15	8 P	12 P	.19	
14	53	11 A	36	0 A	44.5	93	0.0	s	174	20	0 A	6 P	.95	
15	53	2 P	31	12 P	42.0	56	10.8	nw	240	20				
16	39	3 P	24	7 A	31.5	48	10.9	nw	218	20				
17	36	4 P	26	12 P	31.0	53	1.1	nw	139	20				
18	34	4 P	22	7 A	28.0	54	9.0	w	242	22				
19	45	3 P	19	7 A	32.0	55	11.8	se	157	20				
20	50	5 P	21	6 A	35.5	60	8.9	w	98	13				
21	50	3 P	31	6 A	40.5	48	7.0	n	140	13				
22	48	2 P	29	6 A	38.5	63	5.2	nw	94	17				
23	51	4 P	26	5 A	38.5	61	4.0	sw	115	13				
24	55	4 P	37	1 A	46.0	85	0.0	s	61	9	9 A	12 M	.06	
25	52	1 P	27	12 P	39.5	77	1.0	w	299	32	7 A	2 P	.23	T
26	27	0 A	18	7 A	22.5	48	0.0	nw	458	32				
27	33	5 P	19	6 A	26.0	48	6.0	nw	324	28				
28	37	3 P	15	7 A	26.0	59	12.3	n	153	20				
29	45	11 A	23	5 A	34.0	65	2.2	se	155	20				
30	35	3 P	27	12 P	31.0	51	8.0	w	332	32				T
31	45	4 P	19	6 A	32.0	46	12.6	nw	241	18				

* Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

March, 1947		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.47, 12th	30.57	31.05, 1943
Minimum	28.63, 3rd	29.24	28.47, 1914
Mean semi-daily	29.840	30.00	
Range	2.13	1.34	2.10, 1914; 0.85, 1915
Air Temperature, in degrees F.			
Highest	55, 24th	63.8	85, 1929
Lowest	11, 1st	6.1	–7.5, 1906
Mean	34.0	34.4	
Range	44	57.6	
Highest mean daily	46, 24th		
Lowest mean daily	22.5, 26th		
Mean maximum	42.6	43.2	
Mean minimum	25.3	25.4	
Greatest daily range	30, 13th		
Least daily range	8, 4th, 30th		
Precipitation, in inches			
Precipitation	3.29	3.70	7.89, 1942; 0.12, 1915
Snow	3.00	7.47	27, 1899; 0, 1921
Maximum precip. in 24 hrs.	1.72, 2nd		
Number of days with .01 or more	6	11	17, 1890, 1913, 1936; 3, 1915
Wind, in miles			
Total movement	5923	5944	8182, 1896; 3006, 1905
Greatest daily movement	458, 26th		
Least daily movement	55, 1st		
Mean hourly velocity	7.9	7.7	
Maximum velocity	45, 3rd	31.2	48, 1932, 1939, 1941, 1942
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	7		
Northeast, days	0		
East, days	0		
Southeast, days	2		
South, days	3		
Southwest, days	3		
West, days	7		
Northwest, days	9		
Weather			
Mean relative humidity, percent	62.9	64.2	
Mean cloudiness, percent	54	51.8	68, 1901; 27, 1915
Number of clear days	13	11	22, 1924; 3, 1901
Number of fair days	9	10	17, 1900; 1, 1943
Number of cloudy days	9	10	21, 1901; 1, 1915
Number of hours bright sunshine	199	199	292, 1924; 93, 1901
Percent of possible hours of bright sunshine	53.6	53.6	
Thunder and lightning	—		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1946.

REMARKS

The weather during March was a little colder than normal with mean temperature of 34° compared to the normal mean of 34.4°. Last year we had the warmest March on record with mean temperature of 44.5°.

The mean temperature for the winter season now stands at 31.8° compared to the normal for the same period of 29.7°. Highest temperature of 55° this month occurred on the 24th; the normal high is 63.8°. The lowest temperature of 11° came on the 1st; the normal low is 6.1°. Record high was 85° on the 29th in 1945 and the record low is -7.5° as of March 24, 1906.

Degree-days for March were 962 against a normal of 950. The heating period, September 1 to March 31, is 5425 degree-days which is somewhat below the normal of 5932 degree-days.

There was less snow than usual when only 3 inches fell. The normal is 7.47 inches. Total snow of 34.5 inches this winter is considerably below normal of 45.62 inches. The normal for the entire snow season is 47.79 inches.

Precipitation is less than normal for March when 3.29 inches fell. The March normal is 3.70 inches.

There were 199 hours of bright sunshine which was the same as the normal.

Humidity was 62.9 percent; normal is 64.2 percent.

Two very low barometric readings developed in March when 28.63 inches occurred at 6 A.M. on the 3rd and 28.88 inches at 1 P.M. on the 25th. The hurricane of 1938 had a low barometer recording of 28.41 inches. Both lows this month were accompanied by high winds. Maximum velocity of 45 miles per hour was recorded on the 3rd.

MASS. STATE COLLEGE
AMHERST, MASS. 3 46

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 700 April 1947

Meteorological Observations

FOR

APRIL

1947

M. J. MARKUSON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	54	3 P	26	3 A	40.0	56	3.2	s	129	18				
2	46	12 M	35	10 P	40.5	90	0.0	nw	148	13	10 A	12 P	.74	
3	51	4 P	32	7 A	41.5	39	12.8	nw	265	25				
4	54	4 P	23	7 A	38.5	47	12.8	w	124	10				
5	40	4 P	35	6 A	37.5	76	0.0	s	153	10	3 A	8 P	1.23	
6	74	5 P	37	4 A	55.5	77	6.0	w	135	18				
7	55	0 A	37	12 P	46.0	60	0.7	nw	355	25				
8	54	5 P	33	5 A	43.5	47	13.0	n	193	13				
9	46	5 P	34	12 P	40.0	72	0.5	n	83	12	10 A	10:30 A	T	
10	63	3 P	27	6 A	45.0	57	13.1	sw	125	17				
11	73	2 P	44	3 A	58.5	68	7.0	sw	353	22				
12	73	4 P	48	12 P	60.5	68	6.7	w	220	15	6 A	7 A	.04	
13	57	3 P	37	6 A	47.0	52	13.2	nw	209	22				
14	50	3 P	37	1 A	43.5	76	1.4	e	157	12	7 P	8:30 P	.03	
15	62	2 P	35	3 A	48.5	55	13.3	w	162	18				
16	45	2 P	36	5 A	40.5	76	0.0	e	153	14	10:30 A	8:30 P	.57	
17	48	1 P	33	12 P	40.5	55	0.0	w	227	28				
18	56	11 A	29	5 A	42.5	55	4.7	sw	207	28				
19	51	4 P	35	12 P	43.0	56	8.4	n	163	18				
20	35	0 A	31	8 A	33.0	95	0.0	n	88	7	6 A	12 P	.52	1.25
21	38	1 P	28	12 P	33.0	74	0.0	n	156	13	0 A	11 A	.41	1.00
22	49	4 P	24	6 A	36.5	46	13.6	se	137	12				
23	55	4 P	31	3 A	43.0	62	13.7	sw	144	13				
24	68	2 P	38	2 A	53.0	58	6.0	sw	285	28				
25	51	3 P	40	6 A	45.5	64	0.0	n	220	17	8 P	12 P	.17	
26	56	3 P	38	6 A	47.0	52	8.1	sw	134	17				
27	63	1 P	36	12 P	49.5	50	0.0	w	268	32	1:30 P	4 P	.11	
28	50	4 P	28	5 A	39.0	38	13.9	w	245	28				
29	63	3 P	33	5 A	48.0	48	5.5	se	227	18				
30	74	2 P	49	0 A	61.5	77	5.4	se	249	15	6 A	12 P	.77	

* Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

April, 1947		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.51, 22nd	30.48	30.71, 1911
Minimum	29.51, 27th	29.38	28.98, 1943
Mean semi-daily	30.100	29.99	
Range	1.00	1.11	1.52, 1930; .72, 1919
Air Temperature, in degrees F.			
Highest	74, 6th, 30th	79.4	90, 1941
Lowest	23, 4th	22.0	8.5, 1923
Mean	44.7	45.7	52, 1921; 41, 1943
Range	51	57.4	
Highest mean daily	61.5, 30th		
Lowest mean daily	33, 20th, 21st		
Mean maximum	55.1	56.8	
Mean minimum	34.3	34.8	
Greatest daily range	37, 6th		
Least daily range	4, 20th		
Precipitation, in inches			
Precipitation	4.59	3.35	6.89, 1929; .55, 1941
Snow	2.25	2.17	11, 1891; 0, 1910, 1934
Maximum precip. in 24 hrs.	1.23, 5th		
Number of days with .01 or more	10	11	18, 1909; 3, 1892
Wind, in miles			
Total movement	5714	5404	8208, 1908; 3853, 1917
Greatest daily movement	355, 7th		
Least daily movement	83, 9th		
Mean hourly velocity	7.9	7.5	
Maximum velocity	32, 27th	31.4	40, 1935, 1938, 1940, 1945
Wind, direction			
Prevailing direction	W	WNW	
North, days	6		
Northeast, days	0		
East, days	2		
Southeast, days	3		
South, days	2		
Southwest, days	6		
West, days	7		
Northwest, days	4		
Weather			
Mean relative humidity, percent	61.5	61.6	
Mean cloudiness, percent	58%	51.8	75, 1901; 34, 1925, 1927
Number of clear days	9	11	23, 1941; 3, 1898, 1902
Number of fair days	9	9	18, 1915; 2, 1894, 1901
Number of cloudy days	12	10	22, 1901; 1, 1941
Number of hours bright sunshine	183	220	329, 1941; 103, 1901
Percent of possible hours of bright sunshine	45.5	54.7	
Thunder and lightning	30th	Apr. 15	Mar. 14, 1910; May 11, 1907

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1946.

REMARKS

The weather during April had about an inch more precipitation and a slightly lower mean temperature than normal. Precipitation totalled 4.59 inches which was fairly well distributed over 10 days. The normal precipitation is 3.35 inches. Mean temperature was 44.7 degrees while the normal mean temperature is 45.7 degrees. The highest temperature of 74 degrees occurred on the 6th and 30th; the normal is 79.4 degrees. The lowest temperature of 23 degrees was recorded on the 4th; the normal low is 22.0 degrees.

The snowfall totalled 2.25 inches compared to a normal of 2.17 inches. The total for the season is now 36.75 inches which is below the normal of 47.79 inches. The total hours of sunshine is 183 and this is somewhat below the normal of 220 hours for April.

The domestic heating load for the month was 608 degree-days which is above the normal of 579 degree-days. The season's total from September 1 to the end of April is now 6033 degree-days which is considerably less than the normal of 6511 degree-days.

Dr. J. K. Shaw, research pomologist, gives the following report: "The past winter was mild with only one sub-zero temperature recorded. Peach fruit buds came through with little killing and a full bloom is in prospect. There should be little or no winter injury to fruit plants. The progress of vegetation to May 1st is about normal and from two to four weeks later than it was in the last two years. Fruit buds are swelling and a few days of warm weather will bring them into bloom. There will be ample bloom on tree fruits but probably not equal to the heavy bloom of last year. Some leaf area of apple trees is exposed and the wet period at the beginning of May is favorable for infection from the heavy carryover of apple scab from last season. Thus the stage is set for another season of severe injury unless adequate preventive measures are taken."

MASS. STATE COLLEGE
AMHERST, MASS. 3 46

MASSACHUSETTS

AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 701 May 1947

Meteorological Observations

FOR

MAY

1947

F. J. SIEVERS

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 feet.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation		
	Maximum		Minimum										
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water
1	58	0 A	40	12 P	49.0	91	0.0	n	115	14	4 A	9:30 P	.11
2	43	4 P	38	7 A	40.5	90	0.0	ne	123	13	2 P	3 P	.03
3	48	3 P	43	0 A	45.5	86	0.0	n	134	9	3 P	11 P	1.00
4	55	7 P	45	4 A	50.0	94	0.0	n	120	13	7 A	5 P	.14
5	61	2 P	47	6 A	54.0	85	3.0	n	86	10	1:30 P	10:30 P	.26
6	67	3 P	47	7 A	57.0	68	5.5	nw	271	25			
7	57	10 A	40	12 P	48.5	72	1.0	s	107	20	12:30 P	4 P	.16
8	46	2 P	34	12 P	40.0	50	8.0	nw	349	28			
9	48	5 P	34	4 A	41.0	46	5.0	nw	208	29			
10	60	5 P	28	5 A	44.0	38	14.4	w	127	12.5			
11	71	5 P	32	6 A	51.5	35	14.4	w	127	12.0			
12	81	5 P	49	0 A	65.0	37	14.5	sw	160	20			
13	87	1 P	54	4 A	70.5	52	7.0	sw	143	25	10:30 P	12 P	.06
14	62	0 A	37	12 P	49.5	64	3.0	e	185	12.5			
15	65	5 P	31	5 A	48.0	48	14.6	se	105	10.5			
16	66	1 P	38	5 A	52.0	55	7.0	se	179	15			
17	73	4 P	42	5 A	57.5	48	11.5	n	110	20			
18	58	8 P	49	6 A	53.5	93	0.0	s	98	10	1 A	6 P	.27
19	76	4 P	54	2 A	65.0	66	9.0	s	117	10			
20	82	4 P	53	5 A	67.5	78	5.7	s	185	28	12:30 A	4 A	.04
21	61	0 A	50	10 P	55.5	81	0.8	n	129	12	9 A	12 M	.20
22	64	7 A	49	12 P	56.5	88	0.0	n	149	18	9 A	10 A	.10
23	80	5 P	45	5 A	62.5	60	14.5	n	69	11			
24	87	3 P	53	5 A	70.0	66	11.5	s	102	16			
25	77	12 M	62	6 A	69.5	71	7.5	e	108	17	2 P	12 P	2.10
26	76	5 P	57	7 A	66.5	49	14.9	nw	223	14	0 A	12:30 A	.01
27	71	5 P	49	12 P	60.0	38	15.0	nw	195	17			
28	81	3 P	48	1 A	64.5	62	7.4	se	90	11			
29	86	3 P	63	5 A	74.5	75	8.6	se	198	22	8 P	11:30 P	.15
30	66	3 P	46	12 P	56.0	44	10.3	nw	259	25			
31	68	3 P	37	5 A	52.5	43	10.9	nw	191	22			

* Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

May, 1947		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.32, 10th	30.39	30.62, 1936
Minimum	29.50, 6th	29.51	29.10, 1938
Mean semi-daily	29.968	29.96	
Range	0.82	0.88	
Air Temperature, in degrees F.			
Highest	87, 13th, 24th	86.1	94.5, 1896, 1911
Lowest	28, 10th	31.2	24.0, 1900
Mean	56.1	57.1	
Range	59	54.9	
Highest mean daily	74.5, 29th		
Lowest mean daily	40.0, 8th		
Mean maximum	67.1		
Mean minimum	45.0		
Greatest daily range	39, 11th		
Least daily range	5, 2nd, 3rd		
Precipitation, in inches			
Precipitation	4.63	3.60	7.44, 1931; .48, 1903
Snow	—		
Maximum precip. in 24 hrs.	2.10, 25th		
Number of days with .01 or more	14	12	20, 1901, 1945; 5, 1903
Wind, in miles			
Total movement	4762	4504	5946, 1907; 2180, 1894
Greatest daily movement	349, 8th		
Least daily movement	69, 23rd		
Mean hourly velocity	6.4	6.1	
Maximum velocity	29, 9th	28.8	45, 1935
Wind, direction			
Prevailing direction	NW	W	
North, days	8		
Northeast, days	1		
East, days	2		
Southeast, days	4		
South, days	5		
Southwest, days	2		
West, days	2		
Northwest, days	7		
Weather			
Mean relative humidity, percent	63.6	60.7	
Mean cloudiness, percent	52.0	52.1	70, 1901, 1902; 30, 1923
Number of clear days	10	11	21, 1944; 0, 1927
Number of fair days	11	11	17, 1907, 1926; 5, 1923
Number of cloudy days	10	9	20, 1927; 2, 1941
Number of hours bright sunshine	225	252	350, 1944; 137, 1927
Percent of possible hours of bright sunshine	50	55.6	
Thunder and lightning	25th, 29th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1946.

REMARKS

The weather for May was slightly colder than normal, with a little more precipitation than usual.

The mean temperature for the month was 56.1 degrees, while the normal for May is 57.1 degrees. The highest temperature during the month was 87 degrees on the 13th and 24th; the lowest, 28 degrees on the 10th. The domestic heating load for the month was 277 degree-days, compared to the normal of 267 degree-days for May. The heating load for the season to the end of May is now 6310 degree-days, while the normal for this period is 6778 degree-days.

The total precipitation for the month was 4.63 inches, most of which fell in two storms: 1.00 inch on the 3rd and 2.10 inches on the 25th. The normal precipitation for May is 3.60 inches. Thunder and lightning occurred on the 25th and 29th. Rain fell on 14 days. In May, 1945 rain fell on 20 days. There were 225 hours of bright sunshine. The normal for May is 252 hours.

Dr. J. K. Shaw of the Pomology Department makes the following comments: "For the fourth successive year the Massachusetts apple crop has been injured by spring frosts. There is no record of such a condition as far back as records go. Unlike the previous two years, the program of vegetation was retarded; fruit bloom was a week or ten days later than normal instead of three or four weeks early. Several cold mornings in late April and in May killed many apple blossoms, some in the early cluster bud stage and some later. Bloom was less than the heavy bloom of last year. The apple crop in low lying orchards will be much reduced but we may hope that the total crop will be considerably more than last year. Much wet weather favored scab development and only thoroughly sprayed orchards of susceptible varieties can escape severe scab injury. Severe frost damage is reported from more southern areas and it looks as though the 1947 eastern apple crop will be below normal.

"There was little or no injury to peaches and pears, and full crops are in prospect. Early strawberry bloom was killed, thus retarding the crop, but present indications are for a good crop."

MASS. STATE COLLEGE
AMHERST, MASS. 3 46

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 702 June 1947

Meteorological Observations

FOR

JUNE

1947

F. J. SIEVERS

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation		
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water
	Degrees	Time	Degrees	Time									
1	77	1 P	44	3 A	60.5	72	15.1	s	196	17			
2	79	2 P	57	5 A	68.0	66	6.6	s	194	17			T
3	68	11 A	50	12 P	59.0	86	10.7	s	228	20	12:30 A	2:30 P	.79
4	73	5 P	42	5 A	57.5	46	15.1	ne	128	13			T
5	71	2 P	46	5 A	58.5	54	15.2	s	200	17			
6	86	3 P	53	1 A	69.5	59	15.2	s	187	18	4:30 A	5:30 A	.02
7	66	0 A	52	12 P	59.0	75	0.0	ne	123	11	2 P	12 P	.06
8	53	3 P	46	12 P	49.5	94	0.0	n	104	15	0 A	10 P	1.06
9	74	4 P	47	1 A	60.5	68	15.2	nw	170	20	0 A	4:30 A	.03
10	82	3 P	52	3 A	67.0	69	15.2	se	83	10			
11	90	3 P	59	5 A	74.5	75	9.6	se	111	18			
12	80	1 P	56	12 P	68.0	54	15.3	nw	200	25			
13	79	4 P	49	5 A	64.0	49	15.3	se	91	9			
14	71	8 P	53	8 A	62.0	93	0.3	se	71	20	5:30 A	12 P	.51
15	76	12 M	60	12 P	68.0	56	8.6	nw	168	17	3 A	3 P	.11
16	71	6 P	52	12 P	61.5	74	15.3	nw	141	18			
17	76	3 P	46	5 A	61.0	56	10.0	sw	60	10			
18	70	3 P	56	4 A	63.0	80	8.4	s	117	7			
19	69	1 P	48	4 A	58.5	65	15.3	n	134	22	10 P	10:30 P	.01
20	68	1 P	48	3 A	58.0	73	3.5	ne	71	7			T
21	74	5 P	46	4 A	60.0	65	11.0	nw	82	15			T
22	82	5 P	46	5 A	64.0	64	9.0	nw	72	25	6 P	10 P	.01
23	85	2 P	47	6 A	66.0	58	15.3	s	79	12			T
24	67	11 A	53	5 A	60.0	82	1.0	n	91	15	8 A	12 P	.44
25	77	4 P	53	1 A	65.0	90	8.8	s	118	17	0 A	4:30 P	.18
26	85	3 P	60	4 A	72.5	57	8.5	w	136	17			T
27	87	5 P	56	5 A	71.5	73	10.7	w	67	11			T
28	91	4 P	56	5 A	73.5	60	12.0	s	53	9			
29	88	1 P	69	2 A	78.5	74	7.9	s	103	11			
30	90	3 P	69	4 A	79.5	68	11.0	s	120	11			T
31													

* Based on least time required to blow one mile.

GOON L. CHIN, *Observer*

MONTHLY SUMMARY

June, 1947		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.70, 1st	30.30	30.54, 1889
Minimum	29.49, 16th	29.55	29.24, 1902
Mean semi-daily	29.923	29.95	
Range	1.21	0.75	
Air Temperature, in degrees F.			
Highest	91, 28th	91.2	101, 1919
Lowest	42, 4th	40.0	34, 1891
Mean	64.6	65.7	
Range	49	51.3	
Highest mean daily	79.5, 30th		
Lowest mean daily	49.5, 8th		
Mean maximum	76.8		
Mean minimum	52.4		
Greatest daily range	38, 23rd		
Least daily range	7, 8th		
Precipitation, in inches			
Precipitation	3.22	3.75	9.68, 1922; 0.76, 1908
Snow	—		
Maximum precip. in 24 hrs.	1.06, 8th		
Number of days with .01 or more	11	11	17, 1922, 1945; 4, 1908
Wind, in miles			
Total movement	3698	3585	4571, 1908; 1409, 1906
Greatest daily movement	228, 3rd		
Least daily movement	53, 28th		
Mean hourly velocity	5.1	5.0	
Maximum velocity	25, 12th, 22nd	24.6	48, 1939
Wind, direction			
Prevailing direction	SSW	WSW	
North, days	3		
Northeast, days	3		
East, days	0		
Southeast, days	4		
South, days	11		
Southwest, days	1		
West, days	2		
Northwest, days	6		
Weather			
Mean relative humidity, percent	68.5	66.9	
Mean cloudiness, percent	31.3	51.1	71, 1903; 28, 1908
Number of clear days	15	10	22,1908,1941,1943; 1, 1927
Number of fair days	10	12	23, 1912; 3, 1941
Number of cloudy days	5	8	22, 1903; 1, 1923
Number of hours bright sunshine	305	257	362, 1908; 102, 1903
Percent of possible hours of bright sunshine	66.7	54.0	
Thunder and lightning, 3rd, 14th, 19th, 22nd			

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1946.

REMARKS

June weather was colder than normal, with slightly less rain than usual.

The mean temperature for the month was 64.6 degrees, while the normal for June is 65.7 degrees. The maximum temperature was 91 on the 28th and the minimum, 42 on the 4th. The domestic heating load for June was 88 degree-days compared with the normal for June of 68 degree-days. The total load for the heating season for the period September 1 to June 30 is now 6398 degree-days. The normal for this period is 6846 degree-days.

The total precipitation for the month was 3.22 inches, while the normal for June is 3.75 inches. There were 15 clear days, 10 partly cloudy, and 5 cloudy.

Dr. J. K. Shaw, research pomologist, gives the following report on the progress of vegetation:

"The weather during June continued to be cool and wet, retarding the progress of vegetation. These conditions favored scab development and only orchards intensively sprayed escaped serious infection. Scab spores matured early but infection in our own orchards was much less than last year, probably because of a better spray program. McIntosh set poorly and the crop in our orchards will be the smallest in many years. Conditions for pollination seemed to be fairly good and it is difficult to find reasons for the poor set. Frost was doubtless a factor and the excessive leaf scab of last year may have weakened the trees. Most other varieties have set at least fairly well though the early blooming Gravenstein had many blossoms killed.

Peaches and pears promise full crops but the blueberry crop will be below normal. Strawberries are yielding well."

MASS. STATE COLLEGE
AMHERST, MASS. 3 46

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 703 July 1947

Meteorological Observations

FOR

JULY

1947

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation		
	Maximum		Minimum										
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water
1	90	3 P	68	12 P	79.0	70	8.0	sw	133	32	8:30 P	12 P	.05
2	78	4 P	59	12 P	68.5	45	15.3	n	214	28	0 A	12:30 A	.03
3	80	4 P	52	5 A	66.0	56	14.7	nw	73	11			
4	79	4 P	53	5 A	66.0	55	13.5	ne	142	20			
5	86	4 P	51	5 A	68.5	57	13.0	sw	60	13	8:30 P	9:30 P	.25
6	88	2 P	62	4 A	75.0	69	11.5	se	130	17			
7	85	2 P	64	12 P	74.5	65	15.2	se	190	7			
8	70	1 P	57	5 A	63.5	79	0.0	ne	164	7	8:30 A	12:30 P	.06
9	81	2 P	65	5 A	73.0	79	5.9	se	67	9			
10	85	4 P	70	0 A	77.5	74	2.0	se	110	10	3 A	4 A	.03
11	86	2 P	70	5 A	78.0	77	7.0	se	120	15			
12	84	3 P	60	12 P	72.0	74	8.0	sw	120	17	—	—	.08
13	85	12 M	60	0 A	72.5	67	15.0	nw	161	15	6:30 P	7:30 P	.01
14	90	11 A	62	3 A	76.0	74	15.0	sw	120	6			
15	87	12 M	68	3 A	77.5	80	7.6	sw	126	17			
16	84	9 A	71	2 A	77.5	87	3.2	s	126	25	4:30 A	9 P	.59
17	82	1 P	72	2 A	77.0	82	5.2	s	135	13	3:00 A	5 P	.07
18	87	12 M	71	2 A	79.0	81	7.0	s	149	20	4 P	5:30 P	.08
19	83	3 P	68	12 P	75.5	84	4.0	s	153	17	5 A	12:30 P	.11
20	80	5 P	63	5 A	76.5	70	11.5	nw	155	9			
21	81	3 P	58	5 A	69.5	75	6.0	se	140	15			
22	75	1 P	66	3 A	70.5	94	0.0	se	144	28	—	—	1.00
23	82	3 P	60	0 A	71.0	74	9.3	s	203	11	3 P	4:30 P	.21
24	82	5 P	53	6 A	67.5	64	14.8	w	96	12			
25	85	3 P	58	6 A	71.5	63	14.7	w	64	10			
26	88	1 P	58	6 A	73.0	67	10.5	sw	86	9			
27	87	2 P	64	4 A	70.5	71	14.5	s					
28	80	9 A	69	1 A	74.5	88	3.0	s			5 A	3 P	.16
29	86	2 P	64	5 A	75.0	72	10.2	n	63	9			
30	91	3 P	60	5 A	75.5	73	6.0	sw	61	8			
31	90	1 P	64	12 P	77.0	74	10.4	w	138	14			

* Based on least time required to blow one mile.

THEODORE A. CALIANOS, *Observer*

MONTHLY SUMMARY

July, 1947		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.34, 25th	30.27	30.50, 1892
Minimum	29.62, 19th	29.59	29.27, 1932
Mean semi-daily	29.941	29.96	
Range	0.72	0.68	0.97, 1892; 0.47, 1938
Air Temperature, in degrees F.			
Highest	91, 30th	93.9	104, 1911
Lowest	51 5th	46.4	40, 1890 1898
Mean	73.2	70.8	74.7, 1921; 66.3, 1891
Range	40	47.7	
Highest mean daily	80.5, 31st		
Lowest mean daily	63.5, 8th		
Mean maximum	83.8		
Mean minimum	62.6		
Greatest daily range	35, 5th		
Least daily range	9, 22nd		
Precipitation, in inches			
Precipitation	2.73	4.10	14.51, 1897; 0.70, 1929
Snow	—		
Maximum precip. in 24 hrs.	1.00,22nd		
Number of days with .01 or more	14	11	20, 1915; 4, 1924
Wind, in miles			
Total movement	3,643	3422	5097, 1909; 1109, 1894
Greatest daily movement	214, 2nd		
Least daily movement	60, 5th		
Mean hourly velocity	5.2	4.6	
Maximum velocity	32, 1st	28.7	44, 1936
Wind, direction			
Prevailing direction	SSW	SW	
North, days	2		
Northeast, days	2		
East, days	0		
Southeast, days	7		
South, days	7		
Southwest, days	7		
West, days	3		
Northwest, days	3		
Weather			
Mean relative humidity, percent	72.3	68.4	
Mean cloudiness, percent	32	50.9	70, 1943; 31, 1924
Number of clear days	14	10	22, 1923; 0, 1915
Number of fair days	11	14	24, '09, '21; 4, 1946
Number of cloudy days	6	7	18, 1889; 0, 1910
Number of hours bright sunshine	282	268	371, 1910; 180, 1931
Percent of possible hours of bright sunshine	69	58	
Thunder and lightning	1st, 30th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1946.

REMARKS

July was both hotter and drier than normal. The mean of 73.2 degrees equals 1935 and has been exceeded only by 1921 and 1911. The normal maximum temperature, however, was not reached with 91 degrees on the 30th. Precipitation was recorded on 14 days but most of it fell in two storms on the 16th and the 22d, leaving the month 1.37 inches short and the year 1.51 inches below normal at the month's end. There was more wind movement than normal and more than in any year since 1932. Hours of bright sunshine were more than normal. These things all combined to the benefit of the tobacco harvest but lawns, gardens and field crops dependent on July moisture showed the effects of greater than normal temperatures and the deficiency in normal precipitation.

Dr. J. K. Shaw, research pomologist, makes the following statement: "The progress of vegetation during July was generally normal. All fruit crops progressed as usual and consequently there is nothing special to be put on record. Our own apple crop, especially McIntosh, will be short while that of the state is reported to be above that of last year. It will be spotty, some orchards yielding very well and others poorly. The apple crop in the Appalachian region was badly injured by spring frosts, while there was little injury further north. In general the fruit crop of the country seems to be at least up to normal and we may expect a good supply in 1947."

MASS. STATE COLLEGE
AMHERST, MASS. 3 46

MASSACHUSETTS

AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 704 August, 1947

Meteorological Observations

FOR

AUGUST

1947

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 feet.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation		
	Maximum		Minimum										
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water
1	74	3 P	52	5 A	63.0	70	14.5	ne	157	10			
2	77	5 P	48	5 A	62.5	73	14.5	w	85	8			
3	82	3 P	53	5 A	67.5	73	10.2	se	71	8			
4	83	3 P	61	6 A	72.0	75	8.8	s	81	5			
5	88	3 P	61	5 A	74.5	79	8.0	sw	73	6			
6	90	3 P	62	5 A	76.0	81	11.0	s	82	5			
7	86	4 P	62	3 A	74.0	91	5.7	se	93	9	7:00 A	8:30 A	.06
8	87	2 P	69	12 P	78.0	84	5.1	s	93	13			
9	80	4 P	67	5 A	73.5	87	2.1	se	58	12			
10	84	3 P	60	12 P	72.0	71	10.3	se	115	13			
11	88	5 P	53	5 A	70.5	74	14.1	w	57	7			
12	93	3 P	62	4 A	77.5	73	8.7	sw	94	7			
13	94	2 P	70	2 A	82.0	81	8.5	w	67	7			
14	95	3 P	74	6 A	84.5	77	8.0	sw	109	8			
15	95	2 P	71	5 A	83.0	82	8.3	w	118	12	7:30 P	8:30 P	.02
16	73	1 A	60	12 P	66.5	93	0.0	ne	96	11	6:30 A	4:00 P	.50
17	72	2 P	59	2 A	65.5	86	0.2	ne	124	12			
18	80	5 P	53	7 A	66.5	81	10.0	sw	88	8			
19	88	5 P	65	7 A	76.5	85	9.1	nw	78	14			
20	88	0 A	67	9 A	77.5	83	0.4	ne	118	13	3:45 A	8:15 A	.14
21	77	5 P	62	7 A	69.5	80	3.1	n	67	3			
22	87	5 P	60	6 A	73.5	84	10.8	nw	63	13			
23	90	3 P	66	3 A	78.0	85	8.0	w	72	12			
24	94	3 P	65	6 A	79.5	80	13.6	sw	81	9			
25	95	3 P	68	7 A	81.5	79	13.5	sw	106	10			
26	86	11 A	61	12 P	73.5	87	4.0	ne	160	22	11:30 A	11:00 P	.95
27	78	4 P	59	6 A	68.5	81	7.5	e	110	10	8:30 P	9:30 P	.02
28	76	3 P	55	6 A	65.5	83	4.2	w	52	8			
29	80	4 P	61	6 A	70.5	79	9.8	ne	105	25			
30	74	2 P	58	6 A	66.0	82	1.0	se	66	13			
31	84	2 P	63	0 A	73.5	72	10.0	s	81	25			

* Based on least time required to blow one mile.

Theodore A. Calianos, *Observer*

MONTHLY SUMMARY

August, 1947		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.35, 17th, 18th	30.32	30.50, 1934
Minimum	29.80, 1st	29.61	28.87, 1930
Mean semi-daily	30.097	30.00	
Range	0.55	0.71	
Air Temperature, in degrees F.			
Highest	95, 14th, 15th, 25th	91.6	100, 1918
Lowest	48, 2nd	43.4	34, 1940
Mean	73.0	68.6	62.4, 1903
Range	47	48.1	
Highest mean daily	84.5, 14th		
Lowest mean daily	62.5, 2nd		
Mean maximum	84.5		
Mean minimum	61.5		
Greatest daily range	35, 11th		
Least daily range	13, 9th, 16th, 17th		
Precipitation, in inches			
Precipitation	1.69	4.08	8.40, 1928; .31, 1894
Snow	—		
Maximum precip. in 24 hrs.	0.95, 26th		
Number of days with .01 or more	6	11	16, 1892, 1933; 4, 1899
Wind, in miles			
Total movement	2820	3127	4,271, 1910; 1,920, 1894
Greatest daily movement	160. 26th		
Least daily movement	52, 28th		
Mean hourly velocity	3.8	4.2	
Maximum velocity	25, 29th, 31st	22.7	40, 1941
Wind, direction			
Prevailing direction	SSW	SW	
North, days	1		
Northeast, days	6		
East, days	1		
Southeast, days	5		
South, days	4		
Southwest, days	6		
West, days	6		
Northwest, days	2		
Weather			
Mean relative humidity, percent	80.4	70.2	
Mean cloudiness, percent	33	49.7	67, 1901, 1946; 27, 1923
Number of clear days	12	9	23, 1941; 0, 1915, 1929
Number of fair days	11	13	25, 1912; 3, 1939
Number of cloudy days	8	9	18, 1901, '28; 2, 1910. '23
Number of hours bright sunshine	243	237	332, 1941; 152, 1915, 1929
Percent of possible hours of bright sunshine	56.6	55.2	
Thunder and lightning	26th		
First frost	—	Sept. 21	Aug. 22, '94,'95; Oct. 13,'09

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1946.

REMARKS

The weather for the month of August provided a most uncomfortable combination of heat and humidity with few breaks, and recorded below normal precipitation. It was the warmest August since 1939 and recorded the highest mean relative humidity in the past 18 years. While the high of 95 degrees was recorded on but 3 days, a temperature of 90 degrees or more was recorded on 8 days of the month. The highest maximum, 100 degrees on August 7, 1918, was never reached but only 1937 and 1939 have recorded warmer Augusts since 1837, the beginning of weather records at Amherst. Of the 1.69 inches of precipitation for the month, 1.45 inches was recorded in 2 storms on the 16th and 26th, and measurable precipitation occurred on 6 days. The cumulative deficiency in precipitation is shown by the 7.64 inches recorded for June, July, and August against a normal of 11.93 inches for this period. There were no high winds during the month.

Dr. J. K. Shaw, research pomologist, makes the following statement: "The weather during August has been characterized by a lack of rainfall. While the drought this late in the season has not been severe enough to seriously injure the fruit crop, it may have slowed the rate of growth of the fruit. Probably the apple harvest will be a little later than average, due mostly to late bloom. The apple crop in the University orchards will be below average due principally to a short McIntosh crop. Reports indicate that the crop over the State will be larger than the small crop of 1946. Peaches are yielding well and other tree fruits are good. The blueberry crop proved to be somewhat better than anticipated."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 705 September 1947

Meteorological Observations

FOR

SEPTEMBER

1947

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation		
	Maximum		Minimum										
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water
1	81	2 P	53	6 A	67.0	72	13.2	w	52	13			
2	82	2 P	63	4 A	72.5	95	3.6	se	97	20	5:30 A	11 A	1.21
3	81	3 P	60	6 A	70.5	70	13.0	w	66	7			
4	85	3 P	56	6 A	70.5	80	13.0	nw	40	10			
5	77	3 P	59	6 A	68.0	86	6.9	s	33	5			
6	81	3 P	65	6 A	73.0	88	6.5	s	72	8			
7	87	3 P	68	0 A	77.5	83	7.5	s	72	9			
8	82	3 P	62	12 P	72.0	83	12.0	se	96	13			
9	83	3 P	59	6 A	71.0	82	7.5	s	46	9			
10	86	3 P	53	7 A	69.5	74	12.8	sw	78	13			
11	86	4 P	69	3 A	77.5	77	10.1	s	133	15			
12	89	1 P	70	6 A	79.5	74	12.2	s	181	20			
13	89	11 A	70	6 A	79.5	79	12.0	se	156	20	6:30 P	9:00 P	.16
14	81	3 P	66	12 P	73.5	92	3.2	se	116	8	11:30 A	12:30 P	.06
15	83	2 P	64	2 A	73.5	90	3.0	se	67	17	1 P	5 P	.48
16	73	1 P	49	12 P	61.0	64	6.2	nw	190	17	3 A	4:15 A	.09
17	77	3 P	44	6 A	60.5	66	12.4	nw	57	7			
18	79	3 P	47	6 A	63.0	65	10.0	se	73	11			
19	76	1 P	49	12 P	62.5	84	0.0	se	153	15			
20	65	3 P	41	5 A	53.0	58	12.3	s	99	8			
21	72	12 P	47	0 A	59.5	84	0.0	s	124	15			
22	74	5 A	43	12 P	58.5	86	0.9	n	234	25	6 A	1 P	.79
23	59	3 P	34	5 A	46.5	59	12.1	n	148	18			
24	61	1 P	34	5 A	47.5	73	4.4	s	63	15			
25	60	3 P	42	12 P	51.0	77	5.0	n	137	20			
26	59	3 P	35	5 A	47.0	55	9.5	ne	156	28			
27	58	3 P	29	6 A	43.5	58	12.0	n	90	20			
28	60	3 P	29	6 A	44.5	62	11.9	se	70	10			
29	67	2 P	30	6 A	48.5	72	9.4	se	125	40			
30	53	0 A	37	12 P	45.0	61	6.4	nw	282	25	5 A	6 A	.05

* Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

September, 1947		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.64, 18th	30.45	30.65, 1924
Minimum	29.62, 22nd	29.57	28.41, 1938
Mean semi-daily	30.176	30.06	
Range	1.02	.88	1.99, 1938; .57, 1910
Air Temperature, in degrees F.			
Highest	89, 12th, 13th	87.7	97, 1895, 1929
Lowest	29, 27th, 28th	33.2	24.5, 1914
Mean	62.9	61.7	
Range	60	54.5	
Highest mean daily	79.5, 12th, 13th		
Lowest mean daily	43.5, 27th		
Mean maximum	74.9		
Mean minimum	50.9		
Greatest daily range	37, 29th		
Least daily range	15, 14th		
Precipitation, in inches			
Precipitation	2.84	4.24	14.55, 1938; .52, 1914
Snow	—		
Maximum precip. in 24 hrs.	1.21, 2nd		
Number of days with .01 or more	7	10	16, 1933; 3, 1903
Wind, in miles			
Total movement	3306	3271	4,686, 1896; 1,414, 1894
Greatest daily movement	282, 30th		
Least daily movement	33, 5th		
Mean hourly velocity	4.6	4.5	
Maximum velocity	40, 29th	25.9	80, 1938
Wind, direction			
Prevailing direction	S	WSW	
North, days	4		
Northeast, days	1		
East, days	0		
Southeast, days	9		
South, days	9		
Southwest, days	1		
West, days	2		
Northwest, days	4		
Weather			
Mean relative humidity, percent	75.0	73.6	
Mean cloudiness, percent	23.0	49.9	70, 1934; 27, 1908, 1914
Number of clear days	16	10	19, 1932; 2, 1907, 1928
Number of fair days	8	10	19, 1908; 3, 1889
Number of cloudy days	6	10	20, 1934; 3, 1941
Number of hours bright sunshine	249	201	255, 1916; 106, 1934
Percent of possible hours of bright sunshine	72.6	54.9	
Thunder and lightning	13th, 15th		
First frost	27th	Sept. 21	Oct. 13, 1909, Aug. 22, 1894-95

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1946.

REMARKS

September weather was not violently extreme but it avoided the normal in almost every category. While the mean temperature for the month held 1.2 degrees above normal, 184 degree-days of heating load were accumulated against a normal of 149 for the largest September heating load since 1938. Recording a maximum temperature of 89 degrees on the 12th and 13th at 1.3 degrees above normal, the 29-degree minimum on the 27th and 28th gave the month's greatest range and lowest minimum since 1942. With the mean date of first frost September 21, September 27 recorded the first frost of this season for the earliest date since 1940.

Precipitation continued the trend of the past three months with a below normal 2.84 inches for the month and a below normal 28.32 inches accumulated for the year. Normal for the month shows a deficiency of 1.40 inches, and the year short of normal by 5.30 inches. The storm of the 2d yielded 1.21 inches and there was measurable precipitation on six other days of the month. High winds occurred on the 29th with the maximum velocity recorded at 40 miles per hour.

W. H. Thies, Extension Professor of Horticulture, contributes the following report: "The McIntosh apple harvest which normally begins around September 15 is delayed this year for at least two reasons. In the first place, bloom was about 10 days late last spring, and since approximately the same number of days elapses between bloom and maturity, later maturity might be expected this year. Then, too, weather conditions in early September were unfavorable for the coloring of apples. In fact, less color was apparent on September 25 than we commonly find on September 15. Not until the last week in September, when clear days followed cold nights, did the coloring process proceed normally. In spite of this delayed coloring, apples have hung on the tree unusually well this fall. As a result, more McIntosh will be harvested during the first week in October than in the last twenty-five years."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 706 October 1947

Meteorological Observations

FOR

OCTOBER

1947

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation		
	Maximum		Minimum										
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water
1	57	3 P	30	6 A	43.5	54	10.2	nw	195	20			
2	61	2 P	40	12 P	50.5	70	11.7	w	154	32			
3	69	4 P	32	7 A	50.5	78	8.5	sw	24	3			
4	72	3 P	37	4 A	54.5	80	6.6	sw	62	9			
5	75	3 P	52	2 A	63.5	79	6.3	s	119	10			
6	80	3 P	51	3 A	65.5	76	8.2	s	99	10			
7	81	3 P	52	6 A	66.5	75	8.3	s	109	10			
8	74	3 P	54	12 P	64.0	82	1.0	n	97	12			
9	64	3 P	42	12 P	53.0	57	9.0	ne	161	20			
10	67	2 P	34	7 A	50.5	66	11.3	s	74	6			
11	71	3 P	36	5 A	53.5	77	7.0	se	47	7			
12	73	3 P	38	7 A	55.5	69	9.2	se	57	7			
13	69	3 P	42	3 A	55.5	78	10.8	se	109	13			
14	77	3 P	48	12 P	62.5	68	10.3	nw	76	8			
15	81	2 P	38	7 A	59.5	60	11.1	se	52	7			
16	86	2 P	46	7 A	66.0	69	6.5	se	40	6			
17	83	3 P	51	5 A	67.0	84	5.4	se	55	7			
18	78	2 P	57	4 A	67.5	81	2.2	s	76	7	8:30 P	10 P	.08
19	78	2 P	63	12 P	70.5	86	3.2	s	110	12			
20	78	2 P	54	6 A	66.0	58	10.9	n	92	13			
21	74	2 P	52	12 P	63.0	41	10.9	n	156	25			
22	74	4 P	36	7 A	55.0	57	10.8	s	40	5			
23	83	2 P	45	7 A	64.0	57	10.8	n	196	28			
24	59	3 P	32	12 P	45.5	41	10.7	ne	214	25			
25	67	2 P	23	7 A	45.0	60	8.0	sw	71	10			
26	75	3 P	39	6 A	57.0	70	6.6	w	39	6			
27	80	3 P	42	7 A	61.0	73	8.8	se	43	8			
28	74	3 P	49	7 A	61.5	78	2.7	se	152	11			
29	68	3 P	48	12 P	58.0	88	0.0	se	119	15	6 P	8:30 P	.17
30	48	0 A	40	12 P	44.0	84	0.0	ne	161	12	1:30 A	12 P	.79
31	46	4 P	36	10 P	41.0	77	0.0	ne	241	22	0 A	11 A	1.00

* Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

October 1947		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.52, 25th	30.53	30.68, 1929
Minimum	29.71, 19th	29.42	29.00, 1926
Mean semi-daily	30.142	30.06	
Range	0.81	1.11	1.47, 1926, .76, 1899
Air Temperature, in degrees F.			
Highest	86, 16th	79.4	90.5, 1908
Lowest	23, 25th	23.4	17, 1936
Mean	57.4	50.5	56.4, 1920, 43.2, 1890
Range	63	56.0	
Highest mean daily	70.5, 19th		
Lowest mean daily	41.0, 31st		
Mean maximum	71.6		
Mean minimum	43.2		
Greatest daily range	44, 25th		
Least daily range	8, 30th		
Precipitation, in inches			
Precipitation	2.04	3.29	8.81, 1911; .01, 1924
Snow	—		
Maximum precip. in 24 hrs.	1.00, 31st		
Number of days with .01 or more	4	9	15, 1913; 1, 1897, 1924
Wind, in miles			
Total movement	3240	4074	5,467, 1910; 2,540, 1894
Greatest daily movement	241, 31st		
Least daily movement	24, 3rd		
Mean hourly velocity	4.4	5.4	
Maximum velocity	32, 2nd	29.5	42, 1937
Wind, direction			
Prevailing direction	SSE	W	
North, days	4		
Northeast, days	4		
East, days	0		
Southeast, days	9		
South, days	7		
Southwest, days	3		
West, days	2		
Northwest, days	2		
Weather			
Mean relative humidity, percent	70.1	69.0	
Mean cloudiness, percent	60	48	67, 1932, 18, 1924
Number of clear days	18	10	21, 1938; 1, 1911
Number of fair days	6	10	17, 1924; 3, 1938
Number of cloudy days	7	11	19, 1896; 3, 1924
Number of hours bright sunshine	227	175.0	232, '23, '38; 91, 1913
Percent of possible hours of bright sunshine	66.5	51.3	
Thunder and lightning	—		
First Frost		Sept. 21	Aug. 22,'94,'95; Oct. 15,'39

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1946.

REMARKS

The weather during October was bright, warm and dry, with 18 clear and 6 fair days, and all but the last 3 days of the month recording some amount of bright sunshine. Until the storm beginning the 29th, the month had recorded .08 inches of rainfall and the 4 previous months had recorded 10.48, bidding for a record drouth in the 5-month period and developing the woodland into a fire hazard of major proportions. The month finally recorded a deficiency of 1.25 inches below normal and the 5 months period a cumulative 12.52 inches against a normal of 19.46 inches of rainfall.

Examination of the records maintained since 1836 discloses that this month established a record mean daily temperature with 57.4 degrees. October 1920 with 56.4 degrees is nearest this record and 1879 with 56.0 is next. On only 2 days were minimum temperatures of less than 32 degrees recorded. The 23-degree minimum on the 25th and the high of 86 on the 16th gave both the highest maximum and the greatest range for the month since 1941. Seven days of the month recorded mean temperatures in excess of 65 degrees. The heating load for the month is 249 degree-days and cumulative for the season 433, slightly higher than last year's cumulative, 416, but still only 72% of normal heating requirement to October 31.

There were no high winds during the month although the fresh to strong winds which occurred between the 19th and the 24th gave trouble in nearby localities affected by forest fires.

W. H. Thies, Extension Professor of Horticulture, contributes the following report: "The month of October has been very favorable for fruit trees in some cases, and less so in others. On fertile, retentive soils, leaves have functioned later than usual thus encouraging the development of fruit buds and the storage of carbohydrates. This will tend to promote tree vigor and productiveness in 1948. There is little evidence, in properly managed orchards, of a lack of maturity in the trees, a condition which commonly precedes one type of winter injury. On poorer soils, trees have probably suffered from a fluctuating water supply and from certain mineral deficiencies which accompany a water shortage. Such trees lost their leaves even before severe frosts had occurred. October weather has been favorable for the continued development of strawberry 'runners.' In fact, some matter row plantings undoubtedly have more plants than are needeed for a full crop."

Correction: An error in barometric readings on page 3 in the June 1947 bulletin gives 30.70 as the maximum on the 1st, 29.49 as the minimum on the 16th and 1.21 as the range. The correct readings are as follows: The maximum was 30.34 on the 21st; the minimum, 29.65 on the 15th; and the range, .69.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 707 November 1947

Meteorological Observations
FOR
NOVEMBER
1947

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	55	3 P	31	7 A	43.0	57	10.3	n	128	10				
2	60	3 P	27	7 A	43.5	70	10.3	w	18	3				
3	59	3 P	28	7 A	43.5	65	2.7	nw	31	7				
4	53	1 P	41	5 A	47.0	77	0.0	nw	99	10	12:30 P	8 P	.06	
5	59	4 P	41	7 A	50.0	61	2.4	nw	88	9	2 P	4 P	.01	
6	48	1 P	45	6 A	46.5	88	0.0	nw	34	5				
7	55	1 P	45	6 A	50.0	80	0.0	e	56	10				
8	57	7 P	40	12 P	48.5	80	0.0	se	278	25	11:30 A	7 P	1.74	
9	47	2 P	34	7 A	40.5	60	4.2	nw	193	18				
10	47	3 P	29	12 P	38.0	66	7.5	n	158	22				
11	45	12 P	23	7 A	34.0	85	0.0	nw	28	4	5:30 P	12 P	.27	
12	47	3 A	33	12 P	40.0	79	0.6	n	307	32	0 A	2 P	2.46	
13	42	1 P	26	7 A	34.0	64	3.2	n	170	20				
14	42	3 P	29	12 P	35.5	46	9.8	n	266	22				
15	45	2 P	26	7 A	35.5	48	4.0	nw	156	11				
16	43	3 P	32	6 A	37.5	64	0.0	w	41	9				
17	41	3 P	30	7 A	35.5	62	5.4	nw	388	25				
18	43	3 P	29	12 P	36.0	55	9.7	nw	332	22				
19	43	3 P	23	7 A	33.0	65	9.6	nw	127	20				
20	41	3 P	21	7 A	31.0	68	5.0	nw	99	15				
21	45	3 P	26	2 A	35.5	66	7.0	nw	72	14				
22	42	12 P	23	7 A	32.5	77	.04	s	40	6				
23	52	2 P	32	11 P	42.0	88	1.4	n	52	10	0 A	5 A	.49	
24	43	6 P	28	7 A	35.5	83	0.0	n	43	10	2:30 P	10 P	.57	
25	42	5 A	30	9 P	39.0	61	0.0	nw	238	22				
26	42	1 P	32	8 A	37.0	64	1.0	w	67	8				
27	37	3 P	22	7 A	29.5	55	4.3	s	99	28				
28	73	3 P	26	0 A	34.5	77	0.0	s	90	9	9:30 A	10:30 A	.03	
29	32	1 P	22	8 A	27.0	76	0.0	s	66	8				T
30	34	1 P	15	7 A	24.5	74	2.2	w	75	14				

* Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

November, 1947		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.55, 21st, 22nd	30.59	30.87, 1932
Minimum	29.17, 24th, 25th	29.30	28.73, 1904
Mean semi-daily	30.056	30.05	
Range	1.38	1.29	1.84, 1904; .89, 1943
Air Temperature, in degrees F.			
Highest	60, 2nd	66.0	75, 1924, 1938
Lowest	15, 30th	12.9	-4, 1938
Mean	38.0	38.9	44.1, 1931; 33.6, 1901
Range	45	53.0	
Highest mean daily	50.0 5th, 7th,		
Lowest mean daily	24.5, 30th		
Mean maximum	46.1		
Mean minimum	29.8		
Greatest daily range	33, 2nd		
Least daily range	3, 6th		
Precipitation, in inches			
Precipitation	5.63	3.41	8.64, 1927; .63, 1917
Snow	T, 29th	2.34	13.50, 1938
Maximum precip. in 24 hrs.	2.46, 12th		
Number of days with .01 or more	8	9	22, 1921; 2, 1904
Wind, in miles			
Total movement	3839	4531	5.978, 1906; 2,589, 1889
Greatest daily movement	388 17th		
Least daily movement	18, 2nd		
Mean hourly velocity	5.3	6.3	
Maximum velocity	32, 12th	30.3	44, 1938
Wind, direction			
Prevailing Direction	NW	WNW	
North, days	7		
Northeast, days	0		
East, days	1		
Southeast, days	1		
South, days	4		
Southwest, days	0		
West, days	4		
Northwest, days	13		
Weather			
Mean relative humidity, percent	68.7	70.6	
Mean cloudiness, percent	78	55.1	72, 1900 1927; 34, 1917
Number of clear days	7	6	15, 1903; 1, 1900, 1911, 1927
Number of fair days	6	9	16, '12; 4, '89, '30, '32, '35
Number of cloudy days	17	15	24, 1927; 9, 1905, 1917
Number of hours bright sunshine	101	121	182, 1903; 66, 1927
Percent of possible hours of bright sunshine	34.5	41.3	
Thunder and lightning	—		
First Frost		Nov. 6	Oct. 10 '25; Dec. 13, 1941

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1946.

REMARKS

The weather for the month was both colder and wetter than normal. The 5.63 inches of precipitation recorded the most rainfall for the month since 1942 and brought the year's cumulative to 35.99 inches which is still 4.33 inches under the normal. The mean temperature for the month was registered at an even 38 degrees, 0.9 degrees below normal for the coldest November since 1939.

No serious storms occurred during the month although 2.46 inches of rain fell on the 12th.

The heating load for the month was 826 degree-days, the greatest for the month since 1939. Cumulative heating load for the season now stands at 1259, which is 130 degree-days below the season normal and indicates only 18.4 instead of the normal 20.3% of mean heating load to have been accumulated at the end of the month.

W. H. Thies, Extension Professor of Horticulture, contributes the following report: "From the standpoint of fruit crops, the weather during November has been quite favorable. Temperatures have been low enough to check tree growth and to encourage hardening of tissues. Only once has the temperature dropped as low as 15° in contrast to near zero weather in late November in years past. Conditions are now ideal for mulching the strawberry planting to provide protection against deeper freezing and consequent heaving of the soil.

Rainfall amounting to 5.63 inches has helped to replenish soil moisture although we are about 5 inches short of normal for the year. In this connection, it should be pointed out that total rainfall is of less significance than the amount which actually penetrates the soil where it falls. An apple tree on a sloping area, for example, may be greatly benefited by contouring or by a heavy mulch which encourages penetration of water otherwise lost in flowering to a lower level. Good management of a fruit planting tends to conserve both moisture and fertility."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 708 December 1947

Meteorological Observations

FOR

DECEMBER

1947

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

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AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	40	2 P	13	7 A	26.5	65	5.0	se	75	10				
2	35	2 P	20	5 A	27.5	80	0.0	nw	19	6				
3	52	4 P	32	6 A	42.0	63	0.0	s	70	10	1 A	2 A	.03	
4	49	0 A	23	12 P	36.0	47	7.4	n	193	25				
5	23	0 A	18	7 P	20.5	79	0.0	n	73	10	8 A	9 P	.43	2.5
6	30	2 P	19	8 P	24.5	74	5.0	nw	157	6				
7	39	1 P	22	0 A	30.5	75	2.1	w	79	10	6 P	12 P	.13	T
8	46	3 P	34	0 A	40.0	83	0.0	se	103	18	0 A	10 A	.18	T
9	40	0 A	26	12 P	33.0	50	0.0	w	480	40				
10	35	3 P	19	8 A	27.0	64	5.2	nw	83	18	7 P	12 P	.15	2.5
11	37	2 P	20	12 P	28.5	76	7.0	nw	88	13	1 A	3 A	.04	.25
12	35	3 P	12	7 A	23.5	74	2.0	w	92	17				
13	32	2 P	15	12 P	23.5	62	2.6	nw	108	18				
14	35	3 P	8	7 A	21.5	65	4.3	s	49	6				
15	40	4 P	12	8 A	26.0	78	6.8	e	61	8	10 P	12 P	.10	
16	51	12 M	34	12 P	42.5	68	5.0	nw	218	32	3 A	7 A	.23	
17	35	3 P	28	9 P	31.5	54	6.0	nw	187	32				
18	38	8 A	14	12 P	26.0	49	2.0	nw	370	32				
19	28	3 P	12	5 A	20.0	48	7.0	n	137	18				
20	30	3 P	11	7 A	20.5	60	5.0	n	98	15				
21	35	12 M	16	0 A	25.5	64	2.8	nw	75	25				
22	33	3 P	22	8 A	27.5	55	6.0	nw	156	20				
23	23	12 P	21	4 A	22.0	88	0.0	nw	130	14	8 A	12 P	.48	4.0
24	29	2 P	10	12 P	19.5	64	9.0	nw	314	25	0 A	2:30A	.03	.25
25	31	4 P	0	8 A	15.5	80	6.0	w	42	3				
26	29	12 P	7	2 A	18.0	90	0.0	nw	196	25	10 A	12 P	.53	8.0
27	32	1 P	15	11 P	23.5	83	0.7	n	398	25				
28	31	3 P	13	7 A	22.0	72	2.0	nw	202	32				
29	19	0 A	11	12 P	15.0	55	7.0	n	384	32				
30	26	2 P	4	8 A	15.0	45	9.1	n	157	15				
31	25	8 P	11	7 A	18.0	55	0.0	n	55	7				

* Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

Total Degree Days for December	1214
Total Degree Days cumulative for season	2473

MONTHLY SUMMARY

December, 1947		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.47, 1st	30.66	30.96, 1889
Minimum	29.25, 16th	29.27	28.85, 1915
Mean semi-daily	30.014	30.06	
Range	1.22	1.38	1.78, 1895; 1.01, 1892
Air Temperature, in degrees F.			
Highest	52, 3rd	54.3	65.5, 1908
Lowest	0, 25th	—1.9	—22.5, 1917
Mean	25 6	27.5	36.9, 1891; 17.1, 1917
Range	52	56.2	
Highest mean daily	42.5, 16th		
Lowest mean daily	15, 29th, 30th		
Mean maximum	34.3		
Mean minimum	16.8		
Greatest daily range	28, 15th		
Least daily range	2 23rd		
Precipitation, in inches			
Precipitation	2.33	3.39	7.77, 1901; .58, 1943
Snow	17.50	8.50	26.50, '02, T, 1891, 1943
Maximum precip. in 24 hrs.	0.53, 26th		
Number of days with .01 or more	11	10	17, 1902; 4, 1892 1943
Wind, in miles			
Total movement	4849	4710	6,694, 1925; 3,239, 1918
Greatest daily movement	480, 9th		
Least daily movement	19, 2nd		
Mean hourly velocity	6.5	6.3	
Maximum velocity	40, 9th	31.4	48, 1938, 1943, 1944
Wind, direction			
Prevailing direction	NW	WNW	
North, days	8		
Northeast, days	0		
East, days	1		
Southeast, days	2		
South, days	2		
Southwest, days	0		
West, days	4		
Northwest, days	14		
Weather			
Mean relative humidity, percent	66.6	69.4	
Mean cloudiness, percent	77	54.9	71, 1929; 39, 1919
Number of clear days	7	8	15, 1890; 2, 1922, 1933
Number of fair days	10	9	16, '09; 4, '89,'30,'31,'36,'38
Number of cloudy days	14	14	23, '33; 7, '09, '23
Number of hours bright sunshine	115	128	172 1896; 63, 1933
Percent of possible hours of bright sunshine	40.6	45.2	
Thunder and lightning	—		
First Snow	Dec. 3	Nov. 6	

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1946.

ANNUAL SUMMARY

Annual, 1947		Normal	Extremes
(Readings reduced to sea level) **Barometer, in inches**			
Maximum	30.89, Jan. 1	30.81	31.05, 1920, 1943
Minimum	28.63, Mar. 3	28.95	28.41, 1938
Mean semi-daily	30.002	30.01	
Range	2.26	1.85	2.47, 1938; 1.38, 1933
Air Temperature, in degrees F.			
Highest	95, Aug. 14 15, 25	95.7	104, 1911
Lowest	-1, Jan. 10	—12.2	-26, 1904
Mean	48.4	47.4	49.8, 1921; 44, 1904
Range	96	107.8	
Highest mean daily	84.5, Aug. 14		
Lowest mean daily	12.5, Jan. 10, Feb. 21		
Mean maximum	58.8	57.8	
Mean minimum	38.1	36.5	
Greatest daily range	44, Oct. 25		
Least daily range	2, Dec. 23		
Precipitation, in inches			
Precipitation	38.32	43.70	59.00, 1938; 30.68 1908
Snow	43.75	47.78	89.00, 1893; 24 50, 1919
Maximum precip. in 24 hrs.	2.46, Nov. 12		
Number of days with .01 or more	107	124	146, 1945; 96, 1924
Wind, in miles			
Total movement	51530	52,223	63,571, 1908; 36,257, 1894
Greatest daily movement	480 Dec. 9		
Least daily movement	7, Jan. 15		
Mean hourly velocity	5.9	5.8	
Maximum velocity	45, Mar. 3	39.5	80, 1938
Wind, direction			
Prevailing direction	WNW	W	
North, days	62		
Northeast, days	17		
East, days	7		
Southeast, days	50		
South, days	61		
Southwest, days	30		
West, days	47		
Northwest, days	91		
Weather			
Mean relative humidity, percent	68.3	67.6	
Mean cloudiness, percent	51.1	51.7	60, '98, '01, '02; 41, '08, '24
Number of clear days	136	116	217, 1941; 59, 1927
Number of fair days	109	123	182, 1912; 64, 1936
Number of cloudy days	120	126	179, '01, '02; 71, 1910, 1941
Number of hours bright sunshine	2385	2,353	3038, 1941; 1864, 1902
Percent of possible hours of bright sunshine	53.5	52.8	
Last snow	Apr. 21	April 15	Mar.14,'10; May 11,'07,'45
First snow	Dec .3	Nov. 6	Oct. 10, '25; Dec. 13, '41
Last frost	May 15	May 14	Apr. 14, '43; June 8, '32
First frost	Sept. 27	Sept. 21	Aug. 22,'94,'95; Oct. 13,'09

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 709 January 1948

Meteorological Observations

FOR

JANUARY

1948

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
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DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	28	9 A	22	11 P	25.0	53	2.0	n	137	14				
2	29	12 P	21	9 A	25.0	86	0.0	ne	275	20	2 A	6 P	.61	3.5
3	35	2 P	25	8 A	30.0	68	8.8	nw	352	25				
4	34	3 P	26	7 A	30.0	75	4.0	e	56	5				
5	33	11 A	29	1 A	31.0	71	3.0	n	137	12				
6	33	1 P	26	12 P	29.5	79	2.0	ne	38	5	5:30 P	12 P	.11	1.25
7	32	2 P	22	9 A	27.0	78	3.6	nw	92	9	0 A	3 A	.02	.25
8	35	3 P	17	11 P	26.0	66	4.6	nw	67	12				
9	39	3 P	18	0 A	28.5	81	3.6	w	137	32	3 A	8 A	.14	1.0
10	28	0 A	6	12 P	17.0	47	4.6	n	390	32				
11	29	3 P	−1	4 A	14.0	59	7.3	nw	100	20				
12	32	10 P	−4	5 A	14.0	86	2.0	s	108	14	1 P	6 P	.03	.25
13	34	1 P	31	12 P	32.5	95	0.0	s	66	10	8 A	6 P	.32	1.5
14	31	0 A	11	12 P	21.0	64	9.4	n	91	13				
15	16	3 P	−2	8 A	7.0	50	9.4	nw	135	18				
16	20	4 P	−8	5 A	6.0	79	4.9	s	18	8				
17	30	3 P	18	3 A	24.0	86	2.0	nw	23	4	6 P	12 P	.12	1.0
18	26	0 A	4	12 P	15.0	64	6.5	nw	308	25	0 A	7 A	.21	2.5
19	19	3 P	−9	7 A	5.0	59	8.6	s	67	13				
20	31	3 P	5	7 A	18.0	57	7.4	se	130	10				
21	31	9 P	17	4 A	24.0	92	0.0	w	80	12	3 A	4 P	.48	3.25
22	28	3 P	17	12 P	22.5	85	2.0	s	31	20				
23	18	1 P	1	12 P	9.5	54	4.0	w	153	25				
24	8	8 P	−16	8 A	−4.0	71	0.0	n	108	20	2 P	12 P	.30	3.0
25	26	2 P	5	12 P	15.5	78	6.7	n	185	13	0 A	9 A	.29	3.0
26	25	1 P	−8	6 A	8.5	67	5.8	nw	38	25				
27	27	1 P	5	1 A	16.0	61	3.6	nw	81	20				
28	21	3 P	3	8 A	12.0	40	9.9	s	243	20				
29	28	2 P	7	7 A	17.5	47	4.5	nw	145	15				
30	14	0 A	−5	8 A	4.5	47	9.9	n	315	28				
31	20	4 P	−10	7 A	5.0	41	9.9	nw	156	17				

* Based on least time required to blow one mile.

Fernand E. Bartlett, *Observer*

MONTHLY SUMMARY

January 1948

January, 1948		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.53, 24th	30.70	31.00, 1927
Minimum	29.34, 21st, 22nd	29.20	28.55, 1913
Mean semi-daily	30.087	30.07	
Range	1.19	1.50	2.18, 1913; 0.97, 1896
Air Temperature, in degrees F.			
Highest	39, 9th	51.1	66.0, 1932
Lowest	—16, 24th	—7.1	—26.0, 1904
Mean	18.0	24.2	34.2, 1913; 13.9, 1918
Range	55	58.2	
Highest mean daily	32.5, 13th		
Lowest mean daily	—4.0 24th		
Mean maximum	27.1		
Mean minimum	8.8		
Greatest daily range	35. 29th		
Least daily range	3, 13th		
Degree Days of Heating Load for month	1459	1265	
Degree Days cumulative for the Season	3932	3817	
Precipitation, in inches			
Precipitation	2.63	3.61	7.15. 1898; 1.07, 1896
Snow	20.5	13.32	33, 1898, 1923; 1.50, '08
Maximum precip. in 24 hrs.	0.61, 2nd		
Number of days with .01 or more	11	11	15, '93, '20; 4, 1901
Wind, in miles			
Total movement	4262	5055	7770, 1908; 2896, 1895
Greatest daily movement	390, 10th		
Least daily movement	18, 16th		
Mean hourly velocity	5.7	6.8	
Maximum velocity	32, 9th, 10th	32.7	47, 1938
Wind, direction			
Prevailing direction	NW	WNW	
North, days	7		
Northeast, days	2		
East, days	1		
Southeast, days	1		
South, days	6		
Southwest, days	0		
West, days	3		
Northwest, days	11		
Weather			
Mean relative humidity, percent	67.3	70.1	
Mean cloudiness, percent	82	55	78, 1932; 37, 1908
Number of clear days	10	9	20.1944; 2, 1914
Number of fair days	12	9	18, 1890; 1926;3,1916, 1944
Number of cloudy days	9	13	22,1923,1931; 4,1920,1939
Number of hours bright sunshine	150	137	214, 1920; 74, 1932
Percent of possible hours of bright sunshine	51	46.7	
Snow	20.5		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1947.

REMARKS

The weather for the month of January was consistently cold and was accompanied by a considerable fall of light density snow. The snowfall of 20.5 inches was considerably over the normal 13.32 inches, but the water yield was only 2.63 inches against a normal of 3.61 inches of water. Of the 38.0 inches of snowfall cumulative for the season, 17 inches remained on the ground on the 31st.

The lowest minimum temperature of the month, −16, occurred on the 24th. This was 10 degrees short of the record −26 of January 1904 and was 5 degrees warmer than the −21 recorded in January 1935. The maximum of 39 degrees recorded on the 9th is the lowest maximum temperature recorded in the month since the beginning of our records. The normal mean maximum for January is 51.1 degrees while the mean maximum recorded for the current month was 27.1 degrees.

The mean temperature for the month at 18.0 degrees was 0.2 degree above January of 1945 but was considerably below the normal mean of 24.2 degrees. Prior to 1945 the most recent severe January was recorded in 1920. The degree-days of heating load resulting from this very low mean built to 1459 for the month and 3932 cumulative for the season, against a normal of 1265 degree-days for the month and a cumulative of 3817. On January 22, the midpoint of the normal heating load, the cumulative degree-days reached 3431 against a normal of 3425.

W. H. Thies, Extension Professor of Horticulture, contributes the following report: "An unusually heavy blanket of snow during January has offered good protection to plant roots and has been highly favorable for fall seedings. Some smothering of new seedings may occur, however, if a layer of ice forms on top of the snow as a result of freezing temperatures during subsequent rains. The heavy snow cover will have another favorable effect in that a major portion of the winter precipitation will be able to penetrate the soil where it falls, since there has been relatively little freezing of the soil. This assumes of course, a moderate rate of melting of the snow.

The temperature in various parts of the State has dropped below the critical point for peach buds (about 15°). This will undoubtedly mean some reduction in the 1948 peach crop. Little or no damage to apple buds is apparent thus far. Fruit growers may expect considerable mouse damage in orchards with heavy grass cover, where control measures were not carried out last fall."

VIRGINIA POLYTECHNIC INS
AGRICULTURAL BRANCH L
BLACKSBURG, VIRGIN

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 710 February 1948

Meteorological Observations

FOR

FEBRUARY
1948

H. N. STAPLETON

OBSERVATORY

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Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	25	4 P	5	8 A	15.0	56	10.0	nw	92	14				
2	32	5 P	−1	1 A	15.5	63	10.0	s	21	5				
3	25	4 A	9	12 P	17.0	45	10.1	w	232	22				
4	9	0 A	3	5 A	6.0	72	0.0	nw	94	8	8 A	12 P	.20	2.0
5	30	3 P	2	12 P	16.0	75	7.2	nw	155	13				
6	27	4 P	2	0 A	14.5	56	4.2	w	19	9				
7	30	3 P	−7	7 A	11.5	66	5.0	s	78	8				
8	29	10 A	6	12 P	17.5	55	6.2	nw	258	40				
9	18	4 P	−7	7 A	5.5	53	10.3	n	113	15				
10	23	4 P	−10	7 A	6.5	59	10.3	n	99	10				
11	25	4 P	−10	7 A	7.5	78	2.0	s	42	10	5 P	12 P	.17	2.0
12	38	3 P	17	12 P	27.5	70	7.2	n	109	18				
13	30	12 P	7	5 A	18.5	83	0.0	w	36	10	2 P	12 P	.76	1.0
14	45	8 A	25	12 P	35.0	73	4.0	w	318	48	0 A	6 A	.14	
15	27	3 P	16	6 A	21.5	47	10.5	w	403	40				
16	40	12 P	7	7 A	23.5	60	2.0	se	107	13				
17	50	2 P	36	12 P	43.0	67	6.6	se	241	28				
18	45	1 P	27	12 P	36.0	52	9.6	w	205	28				
19	44	12 P	20	6 A	32.0	72	2.0	nw	29	3				
20	44	0 A	20	12 P	32.0	47	1.3	w	235	25				
21	30	4 P	12	7 A	21.0	51	10.8	nw	88	14				
22	27	4 P	15	12 P	21.0	79	0.6	ne	127	13	4 A	10:30A	.05	1.0
23	28	3 P	6	7 A	17.0	59	10.9	n	122	11				
24	31	5 P	0	7 A	15.5	57	6.0	s	74	9				
25	44	5 P	25	1 A	34.5	74	2.3	sw	243	25				
26	37	2 A	26	12 P	31.5	84	0.0	n	82	17	1 P	4 P	.05	1.0
27	41	3 P	19	6 A	30.0	72	6.3	n	84	10				
28	29	1 P	22	12 P	25.5	88	0.0	nw	85	12	4 A	12 P	.96	6.0
29	31	2 P	16	12 P	23.5	72	4.6	nw	164	14	0 A	3 P	.12	2.0

* Based on least time required to blow one mile.

Fernand E. Bartlett, *Observer*

MONTHLY SUMMARY

February, 1948		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.98, 24th	30.63	31.05, 1920
Minimum	29.12, 14th	29.24	28.56, 1895
Mean semi-daily	30.221	30.04	
Range	1.86	1.38	1.89, '00, '08; .88, '13, '31
Air Temperature, in degrees F.			
Highest	50, 17th	50.5	65.0, 1930
Lowest	−10, 10th, 11th	—7.4	—23, 1943
Mean	21.4	23.7	32.6, 1890; 11.6, 1934
Range	60	58	
Highest mean daily	43.0, 17th		
Lowest mean daily	5.5, 9th		
Mean maximum	32.2	32.8	
Mean minimum	10.6	14.5	
Greatest daily range	37, 7th		
Least daily range	6, 4th		
Degree days of heating load for month	1264		
Degree days cumulative for season	5196		
Precipitation, in inches			
Precipitation	2.45	3.19	8.12, 1900; 0.62, 1901
Snow	15.0	13.99	48.75, 1893; 0.50, 1937
Maximum precip. in 24 hrs.	.96, 28th		
Number of days with .01 or more	8	10	15, '93, '20; 4, 1901
Wind, in miles			
Total movement	3955	4776	6445, 1896; 3438, 1892
Greatest daily movement	403, 15th		
Least daily movement	19, 6th		
Mean hourly velocity	5.7	7.1	
Maximum velocity	48, 14th	31.7	50, 1946
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	6		
Northeast, days	1		
East, days	0		
Southeast, days	2		
South, days	4		
Southwest, days	1		
West, days	7		
Northwest, days	8		
Weather			
Mean relative humidity, percent	65.0	66.6	
Mean cloudiness, percent	82	50.9	66, '90, '27; 31, 1905
Number of clear days	10	10	19, 1941; 2, 1927
Number of fair days	9	8	16, 1920; 2, 1936
Number of cloudy days	10	10	16, 1894; 2, 1920
Number of hours bright sunshine	160	158	221, 1924; 110, '27, '38
Percent of possible hours of bright sunshine	54.1	53.4	

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1947.

REMARKS

The weather for the month was near normal in most respects. A below normal minimum barometer on the 14th occurred on the same date as the near record 48-mph maximum wind velocity, and the maximum barometer reading for the month is topped only by the record of 1920. The 15-inch snowfall is only slightly above the normal, 13.99, but the precipitation in water is still below normal at 2.45 inches for the month. The 23 storms of the current season have recorded a total of 53.0 inches of snow to the month's end, considerably above the normal 38.15 inches but not crowding the 71.5 inches of the 1892-1893 record.

The mean minimum at 10.6 degrees is 3.2 degrees below the normal, and the mean temperature for the month settled at 2.3 degrees below normal. This is reflected in the degree days of heating load of 1264 for the month and 5196 for the season against the normals of 1165 and 4982 degree days. Thus the normal heating load would be 72.6% completed at the month's end, and if the current season is to follow the same trend, the season's total load estimates at 7150 degree days against the normal total of 6850, only 4.4% above normal, but 11.7% above last season.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 711 March 1948

Meteorological Observations

FOR

MARCH
1948

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	30	4 P	5	7 A	17.5	57	10.8	nw	115	12				
2	28	3 P	21	7 A	24.5	88	0.0	nw	94	9	6 A	12 P	.78	7.75
3	40	3 P	25	2 A	32.5	74	5.6	nw	193	15	4 A	8 A	.03	.25
4	38	3 P	10	12 P	24.0	70	1.5	nw	148	20				
5	20	3 P	0	7 A	10.0	38	11.4	nw	256	25				
6	40	5 P	-14	7 A	13.0	49	11.5	w	38	5				
7	34	2 P	21	3 A	27.5	88	0.0	s	42	5	7 A	8 P	.42	3.00
8	36	3 P	31	7 A	33.5	61	1.8	nw	179	22				
9	45	4 P	28	7 A	36.5	61	4.4	s	111	14				
10	38	6 P	25	7 A	31.5	84	1.0	w	30	5				
11	31	1 A	17	12 P	24.0	73	0.0	n	151	17	12 M	10 P	.32	4.00
12	34	5 P	8	7 A	21.0	48	11.7	n	200	17				
13	35	2 P	6	7 A	20.5	52	11.8	w	84	10				
14	36	5 P	2	7 A	19.0	62	4.0	se	91	12				
15	48	5 P	23	7 A	35.5	78	1.0	se	136	12				
16	50	7 P	42	1 A	46.0	95	0.0	se	224	18	0 A	11 A	.32	
17	47	0 A	31	12 P	39.0	67	4.4	nw	159	15				
18	50	5 P	22	7 A	36.0	51	12.0	w	55	6				
19	50	9 P	27	4 A	38.5	75	0.2	se	116	20	1 P	12 P	.21	
20	59	5 P	34	12 P	46.5	58	12.0	nw	235	28	0 A	1 A	.01	
21	68	2 P	29	5 A	48.5	78	2.0	s	78	11	2 P	5 P	.33	
22	67	3 P	43	5 A	55.0	70	1.5	nw	150	18	1 A	3 A	.10	
23	44	2 P	38	7 A	41.0	77	0.0	e	129	11				
24	65	3 P	35	5 A	50.0	65	9.3	n	118	13				
25	51	4 P	30	6 A	40.5	43	12.4	ne	195	25				
26	56	1 P	27	6 A	41.5	44	7.4	sw	162	14				
27	59	6 P	51	12 P	55.0	88	0.9	s	245	13	6 P	12 P	.40	
28	51	0 A	28	12 P	39.5	57	0.0	nw	290	20				
29	50	4 P	22	6 A	36.0	54	12.6	se	146	22				
30	62	4 P	31	1 A	46.5	61	8.2	se	240	15				
31	69	3 P	33	7 A	51.0	66	12.6	s	162	22				

* Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

March, 1948		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.87, 5th	30.57	31.05, 1943
Minimum	29.38, 27th	29.24	28.47, 1914
Mean semi-daily	30.087	30.00	
Range	1.49	1.34	2.10, 1914; 0.85, 1915
Air Temperature, in degrees F.			
Highest	69, 31st	63.8	85, 1929
Lowest	-14, 6th	6.1	-7.5, 1906
Mean	34.9	34.4	
Range	83	57.6	
Highest mean daily	55.0, 22nd, 27th		
Lowest mean daily	10.0, 5th		
Mean maximum	46.2	43.2	
Mean minimum	23.6	25.4	
Greatest daily range	54, 6th		
Least daily range	5, 8th		
Degree days of heating load for month	932		
Degree days cumulative for season	6128		
Precipitation, in inches			
Precipitation	2.92	3.70	7.89, 1942; 0.12, 1915
Snow	15.0	7.47	27, 1899; 0, 1921
Maximum precip. in 24 hrs.	0.78, 2nd		
Number of days with .01 or more	10	11	17, 1890, 1913, 1936; 3, 1915
Wind, in miles			
Total movement	4572	5944	8182, 1896,; 3006, 1905
Greatest daily movement	290, 28th		
Least daily movement	30, 10th		
Mean hourly velocity	6.1	7.7	
Maximum velocity	28, 20th	31.2	48, 1932, 1939, 1941, 1942
Wind, direction			
Prevailing direction	WNW		
North, days	3		
Northeast, days	1		
East, days	1		
Southeast, days	6		
South, days	5		
Southwest, days	1		
West, days	4		
Northwest, days	10		
Weather			
Mean relative humidity, percent	65.5	64.2	
Mean cloudiness, percent	85	51.8	68, 1901; 27, 1915
Number of clear days	11	11	22, 1924; 3, 1901
Number of fair days	6	10	17, 1900; 1, 1943
Number of cloudy days	14	10	21, 1901; 1, 1915
Number of hours bright sunshine	172	199	292, 1924, 93, 1901
Percent of possible hours of bright sunshine	46.3	53.6	

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1947.

REMARKS

The month of March brought welcome relief from a winter which had provided both prolonged cold and snow cover of above normal. Early in the month however the record March minimum of −14 was established on the 6th, seven degrees colder than the previous record of −7 reached in 1943 and 1906. This coupled with a 69 maximum on the 31st established a record range of temperature of 83 degrees for the normal range is but 57.6 degrees. The tag end of winter also brought 15 inches of snow fall for the month against a normal of 7.47 giving a total for the season to the month's end of 68.0 inches.

The mean temperature for the month of 34.9 degrees was an even one-half degree above the normal. While comfortable daytime temperatures were reached on most days after the 5th, the morning of the 16th recorded the first overnight period of the season without freezing temperatures and the third night with above-freezing temperatures since last November 12. The degree-days of heating load for the month were 932 against a normal of 950 and the season's total of 6128 against a normal of 5932 degree-days. With the normal heating load 86.5% completed by the end of the month, the heating load for this season can be estimated at very little over the normal of 6850 degree days.

W. H. Thies, Extension Professor of Horticulture, contributes the following report: "One of the most surprising features of the weather during March was the very rapid disappearance of a heavy accumulation of snow. And, contrary to fears of many people, this was accomplished without serious flood conditions. Two or three warm days coupled with the absence of frost in the soil made it possible for the earth to absorb the melting snow "like a sponge". Very little soil erosion has occurred and wells have been replenished.

From an agricultural standpoint, the heavy blanket of snow has, in general, been beneficial. The winter precipitation has been permitted to penetrate the earth where it fell instead of flowing into the lowlands as occurs when the soil is deeply frozen. Fall seedings have come through the winter in realtively good condition. Fruit buds, with the exception of peaches which suffered from low temperatures, look promising. Strawberries look unusually good, having been subjected to little or no injury during the winter. Some injury to conifers exposed to drying winds has, however, been noted and there has been some breakage of young fruit trees due to the heavy snow. It is gratifying to see how generally farmers are growing winter rye on areas subject to both wind and water erosion. This is a move in the direction of soil conservation."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 712 April 1948

Meteorological Observations

FOR

APRIL

1948

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	59	4 A	54	12 P	56.5	89	0.0	SE	250	28	7 A	5 P	.76	
2	54	0 A	38	12 P	46.0	71	1.0	NW	133	22	6:30 A	10 P	.10	
3	41	1 P	33	12 P	37.0	49	6.0	NW	474	32	8 A	9:30 A		T
4	55	5 P	30	7 A	42.5	31	12.8	N	339	32				
5	73	3 P	39	1 A	56.0	39	6.4	S	179	15				
6	65	11 A	43	12 P	54.0	80	2.2	NE	160	13	12 M	3 P	.24	
7	68	3 P	33	6 A	50.5	55	13.0	SE	145	18				
8	50	11 P	39	3 A	44.5	82	0.0	S	88	15				
9	49	0 A	34	12 P	41.5	49	1.2	NW	367	40				
10	48	3 P	27	7 A	37.5	42	13.1	W	387	28				
11	49	12 P	23	5 A	36.0	59	2.3	SE	167	17	4 P	10 P	.44	
12	63	5 P	48	12 P	55.5	76	1.6	W	190	14	2 A	8 A	.32	
13	52	2 P	44	5 A	48.0	44	0.0	NW	137	12				
14	46	5 A	35	12 P	40.5	85	0.0	N	118	9	7 A	12 P	.78	
15	53	2 P	35	2 A	44.0	75	1.9	NW	122	28				
16	59	2 P	28	6 A	43.5	70	10.3	S	148	20				
17	47	3 A	30	12 P	38.5	37	11.8	N	400	28				
18	57	4 P	24	5 A	40.5	45	13.4	SW	295	13				
19	56	2 P	34	2 A	45.0	60	0.7	S	195	13	4 P	10:30 P	.03	
20	71	5 P	43	5 A	57.0	65	1.6	S	198	11				
21	62	11 A	37	12 P	49.5	72	1.4	NE	191	25	1 A	3 A	.03	
22	65	6 P	29	6 A	47.0	55	13.6	NE	46	14	5 A	6 A	.01	
23	72	3 P	32	6 A	52.0	48	8.2	S	107	10				
24	73	3 P	43	7 A	58.0	47	8.0	S	121	10				
25	69	3 P	43	12 P	56.0	43	13.8	SE	154	13				
26	68	4 P	32	6 A	50.0	50	13.9	SW	91	17				
27	62	4 P	32	4 A	47.0	38	13.9	NW	121	15				
28	54	3 P	33	4 A	43.5	59	3.4	E	82	7				
29	55	5 P	39	4 A	47.0	60	2.0	SW	68	9				
30	60	2 P	40	12 P	50.0	65	1.5	W	183	32	4 P	6 P	.16	

* Based on least time required to blow one mile.

FERNAND E. BARTLETT, *Observer*

MONTHLY SUMMARY

April, 1948		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.61, 13th	30.48	30.71, 1911
Minimum	29.40, 30th	29.38	28.98 1943
Mean semi-daily	30.094	29.99	
Range	1.21	1.11	1.52, 1930; .72, 1919
Air Temperature, in degrees F.			
Highest	73, 5th, 24th	79.4	90, 1941
Lowest	23, 11th	22.0	8.5, 1923
Mean	47.2	45.7	52, 1921; 41, 1943
Range	50	57.4	
Highest mean daily	58.0, 24th		
Lowest mean daily	36.0, 11th		
Mean maximum	58.5	56.8	
Mean minimum	35.8	34.8	
Greatest daily range	40, 23rd		
Least daily range	5, 1st		
Degree-days of heating load for month	536		
Degree-days cumulative for season	6664		
Precipitation, in inches			
Precipitation	2.87	3.35	6.89, 1929; .55, 1941
Snow	T. 3rd	2.17	11, 1891; 0, 1910, 1934
Maximum precip, in 24 hrs.	78, 14th		
Number of days with .01 or more	10	11	18, 1909; 3, 1892
Wind in miles			
Total movement	5656	5404	8208, 1908;3853, 1917
Greatest daily movement	474, 3rd		
Least daily movement	46, 22nd		
Mean hourly velocity	7.7	7.5	
Maximum velocity	40, 9th	31.4	40, 1935 1938, 1940, 1945
Wind, direction			
Prevailing direction	SW	WNW	
North days	3		
Northeast, days	3		
East, days	1		
Southeast, days	4		
South, days	7		
Southwest, days	3		
West, days	3		
Northwest, days	6		
Weather			
Mean relative humidity, percent	58.0	61.6	
Mean cloudiness, percent	84	51.8	75, 1901; 34, 1925, 1927
Number of clear days	10	11	23, 1941; 3, 1898, 1902
Number of fair days	4	9	18, 1915; 2, 1894, 1901
Number of cloudy days	16	10	22, 1901; 1, 1941
Number of hours bright sunshine	179	220	329 1941; 103, 1901
Percent of possible hours of bright sunshine	45	54.7	
Thunder and lightning	No. 4, 30th	Apr. 15	Mar. 14, 1910; May 11, 1907

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1947.

REMARKS

While the month of April provided considerable cloudy weather and only 179 hours of bright sunshine against a normal of 220, precipitation continued to remain below normal with only 2.87 inches recorded against a normal of 3.35 inches. In spite of the heavy snow cover from which little was lost to flooded streams, moderately drouthy conditions are noticeable. The precipitation for 1948 so far totals 10.87 inches against a normal of 13.85 inches and the total received since last June 1 is but 33.40 inches. This 11-months' total is compared to our calendar year average of 43.70 inches for emphasis. April has next to lowest monthly average precipitation in our records, and it normally should not have been expected to relieve the deficit in rainfall, but a greater burden of providing moisture for growing crops is now placed upon the precipitation which falls during the growing season.

The cloudiness may have contributed to less extremes in temperatures during the month as a range of 50.0 degrees against an average range of 57.4 degrees was recorded. The normal high for the month is 79.4 while in this month 73 degrees was attained on the 5th. The normal minimum is 22 while 23 degrees was recorded the morning of the 11th. The mean daily temperature for the month was 47.2 degrees, 1.5 degrees above the average. This higher mean daily temperature provided a heating load of 536 degree-days for the month against an average of 579, to bring the season's total to 6664 against a normal of 6511 degree-days. With the normal heating season 95% completed by April 30, warm weather through May and early June could make the total for the current season fall very little over average in heating load.

The wind velocity of 40 mph attained on the 9th ties the record for the month attained in 1938 and equalled in 1940 and 1945. There was more wind movement than normal and on 11 days velocities of 20 mph or above were recorded with 4 days recording maximum velocities above 3 mph.

W. H. Thies, Extension Professor of Horticulture, contributes the following report: "Weather conditions during April have been favorable to apple growers in at least two ways. (1) Relatively cool weather has retarded fruit bud development enough to minimize the danger of frost injury during the blossoming season. (2) Continued dry weather has greatly decreased the danger of pre-blossom infections of apple scab. With McIntosh buds now in the pink stage, we have had only one rainy period of sufficient duration to result in scab infection. Tremendous numbers of scab spores are mature, however, and will be released during the next rain.

Present prospects indicate a heavy apple bloom and, in orchards of good location, a moderate peach bloom. No frost injury to fruit buds has apparently occurred during the past month. With favorable conditions for bee activity during bloom and an absence of damaging frosts during the next three weeks, a larger than normal apple crop may be expected. On lighter soils, newly set fruit trees have required liberal watering."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series | Bulletin No. 713 | May 1948

Meteorological Observations

FOR

MAY

1948

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation		
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water
	Degrees	Time	Degrees	Time									
1	56	2 P	39	1 A	47.5	52	8.4	W	264	22			
2	69	5 P	31	5 A	50.0	52	14.0	SW	46	8			
3	68	3 P	41	5 A	54.5	42	14.1	NE	102	13			
4	72	3 P	39	5 A	55.5	52	13.1	S	118	17			
5	63	3 P	44	6 A	53.5	66	1.8	SE	180	18			
6	71	2 P	43	5 A	57.0	47	14.2	NE	174	15			
7	51	1 P	44	12 P	47.5	88	0.0	E	104	8	1:30 P	12 P	.42
8	51	11 A	43	2 A	47.0	64	0.0	SW	173	18	0 A	8 A	.29
9	71	5 P	45	1 A	58.0	40	10.2	W	242	18			
10	81	1 P	55	0 A	68.0	58	2.9	W	183	28			.01
11	81	5 P	50	5 A	65.5	66	5.7	SE	61	10			
12	81	2 P	55	6 A	68.0	67	4.8	NW	112	9			
13	62	0 A	49	12 P	55.5	87	0.0	N	105	12	5:30 A	3:30 P	.39
14	49	0 A	45	5 A	47.0	82	0.2	N	176	15	6 A	9 P	.11
15	64	6 P	44	4 A	54.0	62	2.8	N	170	28			
16	59	10 A	37	5 A	48.0	83	0.0	SE	62	9	11:30 A	12 P	.98
17	62	2 P	50	0 A	56.0	94	0.0	SE	115	12	0 A	6:30 P	.55
18	67	3 P	52	7 A	58.5	83	2.5	N	103	25	5 A	5 P	.35
19	63	5 P	46	6 A	54.5	43	8.0	N	215	22			
20	63	4 P	43	5 A	53.0	52	3.0	N	135	13			
21	53	5 P	43	2 A	48.0	92	0.0	SE	108	13	4:30 A	12 P	.59
22	58	2 P	42	6 A	50.0	72	0.0	NW	176	25	0 A	5:30 A	.31
23	69	3 P	44	2 A	56.5	72	0.9	E	106	20	8:30 P	12 P	.11
24	72	2 P	52	5 A	62.0	70	2.2	SE	91	12	0 A	8 A	.03
25	69	7 P	54	6 A	61.5	80	0.1	NW	58	5	6 A	5 P	.53
26	71	6 P	58	4 A	64.5	82	3.3	SE	31	9	12:30 A	2 A	.13
27	80	3 P	51	6 A	65.5	86	7.3	SW	75	20			T
28	80	4 P	54	0 A	67.0	71	8.3	SE	109	8			
29	79	3 P	60	5 A	69.5	83	5.4	SE	78	8	2:30 P	3 P	.44
30	72	0 A	63	8 A	67.5	93	0.0	SW	70	9	2 A	11 A	.59
31	71	6 P	61	12 P	66.0	71	0.8	E	72	7			T

* Based on least time required to blow one mile.

Lewis F. Wells, *Observer*

MONTHLY SUMMARY

	May, 1948	Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.06, 6th	30.39	30.62, 1936
Minimum	29.28, 8th, 21st, 22d	29.51	29.10, 1938
Mean semi-daily	29.901	29.96	
Range	0.78	0.88	
Air Temperature, in degrees F.			
Highest	81, 10th, 11th, 12th	86.1	94.5, 1896, 1911
Lowest	31, 2nd	31.2	24.0, 1900
Mean	57.3	57.1	
Range	50	54.9	
Highest mean daily	69.5, 29th		
Lowest mean daily	47.0, 8th, 14th		
Mean maximum	67.0		
Mean minimum	47.6		
Greatest daily range	38, 2nd		
Least daily range	4, 14th		
Degree-days of heating load for month	256		
Degree-days cumulative for season	6920		
Precipitation, in inches			
Precipitation	5.83	3.60	7.44, 1931; .48, 1903
Maximum precip. in 24 hrs.	0.98, 16th		
Number of days with .01 or more	16	12	20, 1901, 1945; 5, 1903
Wind in miles			
Total movement	3814	4504	5946, 1907; 2180, 1894
Greatest daily movement	264, 1st		
Least daily movement	31, 26th		
Mean hourly velocity	5.1	6.1	
Maximum velocity	28, 10th, 15th	28.8	45, 1935
Wind, direction			
Prevailing direction	ESE	W	
North, days	6		
Northeast, days	2		
East, days	3		
Southeast, days	9		
South, days	1		
Southwest, days	4		
West, days	3		
Northwest, days	3		
Weather			
Mean relative humidity, percent	69.4	60.7	
Mean cloudiness, percent	72.0	52.1	70, 1901, 1902; 30, 1923
Number of clear days	5	11	21, 1944; 0, 1927
Number of fair days	7	11	17, 1907, 1926; 5, 1923
Number of cloudy days	19	9	20, 1927; 2, 1941
Number of hours bright sunshine	134	252	350, 1944; 137, 1927
Percent of possible hours of bright sunshine	29.6	55.6	
Thunder and lightning	16th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1947.

REMARKS

The weather for May deviated very little from normal except in cloudiness and rainfall. The precipitation for the month at 5.82 inches exceeded the monthly mean by 2.23 inches bringing the total precipitation for the calendar year to 16.70 inches, 1.05 inches below normal. Even with the 12 months' precipitation since last June 1 at only 37.23 inches, and this season's total below normal, there are now no indications that water is in inadequate supply. With some amount of precipitation on 18 days of the month the extreme cloudiness held the total hours of sunshine to only a little above half the normal for the month.

Degree-days of heating load for the month totaled 256 bringing the season's cumulative to 6920 degree-days.

W. H. Thies, Extension Professor of Horticulture, contributes the following report: "Weather conditions during May have exerted a direct influence on fruit crops in several ways: (1) With some rain on 18 of the 31 days and with long periods of wet foliage, at least five apple scab infections have occurred where trees were unprotected. McIntosh growers have found it necessary to apply frequent fungidical sprays or dusts to provide protection against these primary infections. (2) Fruit bloom was delayed somewhat by cold weather and during much of the blooming period bees were relatively inactive. In spite of this interference with bee activity, there appears to be a reasonably good set of fruit in many orchards. The effect of nearby pollenizing varieties on the set of McIntosh is especially noticeable. Trees adjacent to a good pollenizer have, in general, prospects for a good crop.

"(3) Newly planted trees and small fruit plantings are off to a good start since the roots have become well established before hot, dry weather has occurred. This has been a distinct advantage on lighter soils. (4) The cover crop in orchards has benefited in the same way as pastures and hay fields. Where the soil was well fertilized and adequately limed, more mulch material has grown during the month of May than would have been the case with less rainfall. On heavy and poorly drained soils, however, growers have been at a disadvantage from the standpoint of getting mired with the spraying equipment."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 714 June, 1948

Meteorological Observations

FOR

JUNE

1948

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation		
	Maximum		Minimum										
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water
1	80	3 P	51	5 A	65.5	70	6.8	NE	54	8			T
2	84	3 P	49	5 A	66.5	57	11.3	NE	65	13			
3	80	3 P	51	5 A	65.5	48	8.5	SE	85	15			
4	83	4 P	51	6 A	67.0	49	9.3	S	82	13			
5	65	6 P	54	12 P	59.5	83	2.8	NW	129	17	5:30 A	2 P	1.27
6	72	6 P	41	6 A	56.5	48	9.4	W	105	17			
7	59	0 A	48	6 A	53.5	94	0.0	NW	59	9	7 A	10 P	1.16
8	66	5 P	54	4 A	60.0	90	0.1	NE	98	12	0 A	11 A	.03
9	59	6 P	53	6 A	56.0	84	0.0	NE	95	8	2 A	1 P	.24
10	65	7 P	50	5 A	57.5	91	2.5	SE	58	4	1 A	2 A	.02
11	79	6 P	55	7 A	67.0	77	5.9	SE	44	12	5:30 A		.01
12	76	5 P	55	4 A	65.5	79	5.0	SE	50	14			
13	60	7 P	53	7 A	56.5	93	0.0	N	64	6	0 A	11:30 A	1.19
14	79	5 P	52	7 A	65.5	65	10.0	SW	68	18			T
15	75	6 P	58	6 A	66.5	80	1.3	S	117	9	5:45 P	6:15 P	.10
16	71	4 P	54	6 A	62.5	70	6.3	NE	50	4	5:45 P	6 P	.12
17	71	3 P	49	6 A	60.0	62	8.7	NW	78	18			
18	76	5 P	44	6 A	60.0	56	10.6	NW	64	8			
19	68	3 P	57	7 A	62.5	84	2.2	NW	104	14	5:30 A	10 A	.44
20	78	5 P	52	5 A	65.0	55	12.2	W	64	8			T
21	80	3 P	54	4 A	67.0	51	9.8	NW	116	20			
22	75	2 P	49	5 A	62.0	56	7.3	SW	42	5			
23	62	0 A	57	12 A	59.5	86	0.0	SE	100	9	10 A	8 P	.19
24	85	3 P	55	0 A	70.0	89	4.5	SE	73	32	4 P	12 P	.58
25	84	4 P	65	12 P	74.5	59	12.4	W	103	25	0 A	5 A	.09
26	81	3 P	59	6 A	70.0	68	9.4	S	45	9			
27	75	2 P	60	5 A	67.5	77	2.7	S	87	7			
28	87	3 P	63	2 A	75.0	85	4.9	S	74	9	1:30 A	6:30 P	.20
29	93	2 P	60	4 A	76.5	77	7.3	S	58	17	3 A	6 A	.03
30	91	4 P	70	5 A	80.5	67	9.8	W	111	13			T

* Based on least time required to blow one mile.

LEWIS F. WELLS, *Observer*

MONTHLY SUMMARY

JUNE, 1948		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	29.97, 23rd	30.30	30.70, 1947
Minimum	29.30, 8th	29.55	29.24, 1902
Mean semi-daily	29.803	29.95	
Range	0.67	0.75	
Air Temperature, in degrees F.			
Highest	93, 29th	91.2	101, 1919
Lowest	41, 6th	40.0	34, 1891
Mean	64.7	65.7	
Range	52	51.3	
Highest mean daily	80.5, 30th		
Lowest mean daily	53.5, 7th		
Mean maximum	75.3		
Mean minimum	54.1		
Greatest daily range	35, 2nd		
Least daily range	5, 23rd		
Degree-days of heating load for month	79		
Degree-days cumulative for season	6999		
Precipitation, in inches			
Precipitation	5.67	3.75	9.68, 1922; 0.76, 1908
Maxinum precip. in 24 hrs.	1.27, 5th		
Number of days with .01 or more	15	11	17, 1922, 1945; 4, 1908
Wind in miles			
Total movement	2342	3585	4571, 1908; 1409, 1906
Greatest daily movement	129, 5th		
Least daily movement	42, 22nd		
Mean hourly velocity	3.3	5.0	
Maximum velocity	32, 24th	24.6	48, 1939
Wind, direction			
Prevailing direction	SW	WSW	
North, days	1		
Northeast, days	5		
East, days	0		
Southeast, days	6		
South, days	6		
Southwest, days	2		
West, days	4		
Northwest, days	6		
Weather			
Mean relative humidity, percent	71.8	66.9	
Mean cloudiness, percent	62	51.1	71, 1903; 28, 1908
Number of clear days	3	10	22, 1908, 1941,1943; 1, 1927
Number of fair days	16	12	23, 1912; 3, 1941
Number of cloudy days	11	8	22, 1903; 1, 1923
Number of hours bright sunshine	181	257	362, 1908; 102, 1903
Percent of possible hours of bright sunshine	39.6	54.0	
Thunder and lightning	8th, 9th, 24th, 28th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1947.

REMARKS

It not only seemed to rain more than normal in the month of June, it provided the heaviest precipitation for the month since 1941. In 9 other years since the beginning of our records however the 5.67 inches received this month has been exceeded, and it was considerably below the record 9.68 inches of June, 1922.

Accompanying this greater than normal rainfall were the expected less than normal sunshine, more than normal cloudiness, and less than normal mean temperature. While none of these were of a magnitude to approach a record value, the condition is worthy of note for its effect on farming operations. The harvesting and curing of forage crops was very difficult due to precipitation, low temperature, high humidity and soft ground conditions. Planting of some crops was delayed greatly due to soft fields and the "continuous" rain.

Degree-days of heat load for the month were 79 against a normal of 68 and the season's cumulative load was 6999 against a normal of 6848 degree-days.

W. H. Thies, Extension Professor of Horticulture, contributes the following: "With rainfall amounting to 5.67 inches during June, distributed over 19 days, conditions have been very favorable for the continued spread of apple scab and other fruit diseases. Wherever trees are in good vigor, fruits of various kinds have sized rapidly although some yellowing of foliage in areas of relatively high water table has appeared. In strawberry plantings the yield has been somewhat reduced through smaller sized berries where plants were handicapped by root rot, leaf spot, or other unfavorable conditions.

Much of the soluble plant food has been leached from the soils in the Connecticut Valley as a result of continuous rains during the past two months, according to W. G. Colby of the Agronomy Department. Magnesium deficiencies have appeared on fields of potatoes, and nitrogen deficiencies have been evident on both potatoes and onions. Magnesium deficiency symptoms have been aggravated, not only because of the leaching action of heavy rains, but also because of shalllow root penetration which is characteristic of a wet growing season."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 715 July 1948

Meteorological Observations

FOR

JULY

1948

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation		
	Maximum		Minimum										
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water
1	85	4 P	69	6 A	77.0	80	6.5	N	37	17	1 A	5 A	.21
2	80	4 P	59	3 A	69.5	56	12.5	N	113	14			
3	84	5 P	52	6 A	68.0	59	12.3	E	27	2			
4	86	5 P	54	5 A	70.0	51	12.5	N	42	14			
5	89	4 P	55	6 A	72.0	69	8.2	SW	34	32	6 P	12 P	.93
6	85	2 P	62	12 P	73.5	75	7.0	S	65	28	0 A	4 P	.43
7	75	3 P	56	5 A	65.5	60	11.0	N	158	20			T
8	83	5 P	52	6 A	67.5	58	12.5	NW	31	7			
9	86	3 P	52	6 A	69.0	58	11.4	S	29	6			
10	88	5 P	59	6 A	73.5	57	11.2	E	92	14			
11	91	4 P	62	6 A	76.5	62	9.3	NW	95	12			
12	94	3 P	68	6 A	81.0	67	12.0	SE	84	8			
13	82	12 N	70	12 P	76.0	83	0.5	S	103	9	0 A	11:30 P	1.02
14	81	5 P	63	12 P	72.0	63	11.5	N	138	14			
15	83	5 P	55	6 A	69.0	61	12.4	NW	64	6			
16	85	4 P	55	6 A	70.0	65	8.8	S	61	8			
17	82	1 P	61	6 A	71.5	66	8.1	SE	122	11			
18	88	2 P	62	5 A	75.0	69	8.8	S	66	8			
19	83	4 P	63	6 A	73.0	65	8.0	NW	73	12			
20	84	6 P	59	5 A	71.5	57	12.3	SW	47	8			
21	85	4 P	64	6 A	74.5	73	4.2	SE	59	9			
22	84	3 P	64	5 A	74.0	52	10.6	N	97	11			
23	74	2 P	60	12 P	67.0	77	0.0	E	98	12	3 P	6 P	.21
24	79	2 P	57	12 P	68.0	67	8.8	E	97	15	8 A		T
25	81	4 P	52	4 A	66.5	58	11.0	NW	99	12			
26	81	1 P	56	3 A	68.5	66	5.0	S	95	10	11:30 P	12 P	.14
27	86	2 P	65	4 A	75.5	83	4.0	SE	77	20	8 A	8:30 A	.01
28	87	2 P	66	12 P	76.5	68	8.4	W	98	17			
29	86	2 P	61	4 A	73.5	56	11.3	NW	69	10			
30	90	2 P	60	4 A	75.0	61	9.9	S	70	11			
31	87	—	74	5 A	80.5	59	12.0	W	184	18			

* Based on least time required to blow one mile.

Lewis F. Wells, *Observer*

MONTHLY SUMMARY

JULY, 1948	Normal	Extremes
Barometer, in inches (Readings reduced to sea level)		
Maximum 30.10, 9th	30.27	30.50, 1892
Minimum 29.48, 6th	29.59	29.27, 1932
Mean semi-daily 29.815	29.96	
Range 0.62	0.68	0.97, 1892; 0.47, 1938
Air Temperature, in degrees F.		
Highest 94, 12th	93.9	104, 1911
Lowest 52, 3rd, 8th, 9th, 25th	46.4	40, 1890, 1898
Mean 72.3	70.8	74.7, 1921; 66.3, 1891
Range 42	47.7	
Highest mean daily 81.0, 12th		
Lowest mean daily 65.5, 7th		
Mean maximum 84.3		
Mean minimum 60.2		
Greatest daily range 34, 5th, 9th		
Least daily range 12, 13th		
Precipitation, in inches		
Precipitation 2.95	4.10	14.51, 1897; 0.70, 1929
Maximum precip. in 24 hrs 1.02, 13th		
Number of days with .01 or more 7	11	20, 1915; 4, 1924
Wind in miles		
Total movement 2524	3422	5097, 1909; 1109, 1894
Greatest daily movement 184, 31st		
Least daily movement 27, 3rd		
Mean hourly velocity 3.4	4.6	
Maximum velocity 32, 5th	28.7	44, 1936
Wind, direction		
Prevailing direction SW	SW	
North, days 6		
Northeast, days 0		
East, days 4		
Southeast, days 4		
South, days 7		
Southwest, days 2		
West, days 2		
Northwest, days 6		
Weather		
Mean relative humidity, percent 62.6	68.4	
Mean cloudiness, percent 38	50.9	70, 1943; 31, 1924
Number of clear days 15	10	22, 1923; 0, 1915
Number of fair days 12	14	24, '09, '21; 4, 1946
Number of cloudy days 4	7	18, 1889; 0, 1910
Number of hours bright sunshine 282	268	371, 1910; 180, 1931
Percent of possible hours of bright sunshine 61	58	
Thunder and lightning 5th, 6th, 13th, 23rd, 27th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1947.

REMARKS

The weather for July was a little warmer than normal. The high of 94 degrees recorded on the 12th is but 0.1 degree above the normal maximum. the lowest temperature recorded for the month was 52 degrees the morning of the 25th. while the mean temperature for the month became 72.3 against a normal of 70.8 degrees. It will be noted that this increase in mean temperature was accompanied by an above-normal hours of sunshine and a below-normal mean relative humidity. The result was pleasant weather most of the days of the month.

Rainfall of 2.95 inches compares favorably with 2.73 for July of last year but is 1.15 inches below normal for the month. Total precipitation for the calendar year now stands at 25.32 against a normal of 25.30. with a drouth condition ready to assert itself on most of the lighter soils.

W. H. Thies. Extension Professor of Horticulture. contributes the following: "With less than three inches of rainfall and relatively hot weather in Amherst during July. conditions have been favorable for a build-up of certain orchard pests. including European red mite. Bronzing of foliage is becoming more apparent here and there. and 50 or more mites per leaf have been counted. There has been little if any spread of apple scab on the friut. however. since we have had no lengthy rainy period during the month.

"The hay harvest in Massachusetts got off to an early start and has apparently been completed somewhat earlier than usual. Hay was. in general. heavy and of good quality. Corn and potatoes have made excellent growth during the month although some fields show the effects of earlier leaching of essential elements from the soil. Lawns are in fairly good condition. except on lighter soils where drought symptoms are showing. And, as is usual at this season. some gardeners are worried about the rapid growth of weeds forgetting. perhaps. that garden crops and weeds are subject to exactly the same soil and weather conditions."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 716 August, 1948

Meteorological Observations

FOR

AUGUST

1948

H N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft

Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation		
	Maximum		Minimum										
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water
1	83	3 P	58	5 A	70.5	72	7.7	SE	57	9			
2	84	5 P	62	12 P	73.0	72	6.9	S	95	9			
3	84	3 P	57	6 A	70.5	61	7.5	SE	39	8			
4	82	4 P	61	6 A	71.5	65	6.1	NW	54	10			
5	80	1 P	63	12 P	71.5	66	5.3	NE	94	10	1:30 P	12:00 P	.47
6	71	3 P	56	12 P	63.5	86	2.0	NW	133	18	0 A	1:30 P	.13
7	72	4 P	51	5 A	61.5	55	8.9	N	109	14			T
8	78	3 P	51	6 A	64.5	59	8.8	N	94	11			
9	78	5 P	50	5 A	64.0	63	7.8	NE	34	9			
10	80	4 P	49	6 A	64.5	61	9.5	NE	33	5			T
11	83	1 P	50	6 A	66.5	62	8.9	S	65	10			
12	73	2 P	66	2 A	69.5	93	0.0	S	143	25	12:30 A	4:15 P	1.84
13	75	11 A	62	12 P	68.5	95	0.0	S	68	32	11:00 A	5:30 P	.94
14	77	3 P	58	3 A	67.5	73	4.0	W	95	20	6:00 A	6:30 A	.01
15	84	2 P	55	6 A	69.5	59	11.6	NW	79	14			T
16	84	3 P	52	6 A	68.0	66	10.0	W	25	4			
17	82	1 P	57	6 A	69.5	70	5.0	E	36	6			T
18	79	4 P	53	6 A	66.0	69	9.4	SE	39	5			T
19	74	5 P	58	5 A	66.0	84	0.3	E		4			
20	78	5 P	65	6 A	71.5	82	1.8	SE	41	3			
21	85	4 P	65	3 A	75.0	77	8.6	S	31	6			
22	85	2 P	61	5 A	73.0	70	8.3	E	39	4			
23	87	3 P	62	5 A	74.5	73	9.2	E	16	7			
24	88	4 P	63	2 A	75.5	79	6.8	SE	59	10			T
25	96	2 P	68	2 A	82.0	69	9.5	NE	107	9			
26	100	3 P	69	6 A	84.5	66	10.8	N	11	4			
27	97	4 P	69	6 A	83.0	67	10.3	S	18	11			
28	97	2 P	68	6 A	82.5	72	7.8	E	13	7			
29	89	1 P	72	6 A	80.5	58	9.0	W	75	22			
30	86	3 P	64	6 A	75.0	72	7.1	NW			6:00 P	7:15 P	.17
31	79	1 P	61	6 A	70.0	53	7.7	N					T

* Based on least time required to blow one mile.

LEWIS F. WELLS, *Observer*

MONTHLY SUMMARY

August, 1948		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.16, 23rd	30.32	30.50, 1934
Minimum	29.64, 14th	29.61	28.87, 1930
Mean semi-daily	29.903	30.00	
Range	0.52	0.71	
Air Temperature, in degrees F.			
Highest	100, 26th	91.6	100, 1918
Lowest	49, 10th	43.4	34, 1940
Mean	71.4	68.6	62.4, 1903
Range	51.0	48.1	
Highest mean daily	84.5, 26th		
Lowest mean daily	61.5, 7th		
Mean maximum	82.9		
Mean minimum	59.9		
Greatest daily range	33, 11th		
Least daily range	7, 12th		
Degree-days of heating load for month			
Degree-days cumulative for season	—		
Precipitation, in inches			
Precipitation	3.56	4.08	8.40, 1928; 31, 1894
Snow	—		
Maximum precip. in 24 hrs.	1.84, 12th		
Number of days with .01 or more	6	11	16, 1892, 1933; 4, 1899
Wind in miles			
Total movement	2017	3127	4,271, 1910; 1,920, 1894
Greatest daily movement	143, 12th		
Least daily movement	25, 16th		
Mean hourly velocity	4.6	4.2	
Maximum velocity	32, 13th	22.7	40, 1941
Wind, direction			
Prevailing direction	E	SW	
North, days	4		
Northeast, days	4		
East, days	5		
Southeast, days	5		
South, days	6		
Southwest, days	0		
West, days	3		
Northwest, days	4		
Weather			
Mean relative humidity, percent	70	70.2	
Mean cloudiness, percent	32	49.7	67, 1901, 1946; 27, 1923
Number of clear days	5	9	23, 1941; 0, 1915, 1929
Number of fair days	20	13	25, 1912; 3, 1939
Number of cloudy days	6	9	18, 1901, '28; 2, 1910, '23
Number of hours bright sunshine	216.6	237	332, 1941; 152, 1915, 1929
Percent of possible hours of bright sunshine	50.5	55.2	
Thunder and lightning	12, 13, 22, 29		
First frost	—	Sept. 21	Aug. 22,'94,'95; Oct. 13, '09

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1947.

REMARKS

The weather for the month of August ranged from warm to hot, with a heat wave the last ten days of the month. From the 21st to the 30th the daily maximums were all 85 degrees or higher; from the 25th to the 28th they were in excess of 95, and the 100-degree temperature recorded on the 26th equals the previous August record on August 7, 1918. There were 25 clear and fair days coupled with average relative humidity. The six cloudy days were the same six which gave some recorded rainfall. Precipitation was 0.68 inch below the monthly mean of 4.24 inches, with more than half of the rainfall in the 1.84-inch storm on the 12th. The moisture condition was slightly more favorable than in 1947 as this one storm recorded more precipitation than the entire month a year ago.

The extremely high temperatures late in the month caused severe losses in poultry flocks not protected with fan ventilation. Birds on range vacated black-roofed shelters, preferring the heat of direct sunshine to suffocation in the shade, Scald developed in some cranberry bogs which appeared to affect the uprights as well as the fruit.

W. H. Thies, Extension Professor of Horticulture, contributes the following: "Weather conditions during August have affected the apple crop in several ways. Extremely high temperatures in late August have probably influenced the amount of sun scald on the fruit ranging up to 20 percent or more in some orchards. (A similar condition has also been noted on tomatoes.) Relatively warm nights have not favored color development. An absence of prolonged wet periods has meant freedom from late season scab infections in spite of frequent heavy infections in early summer, but considerable russeting of the fruit is in evidence. This is of common occurrence where the relative humidity is high in contrast to an arid climate. In reality, the heavy russeting of some varieties, including Baldwin, may be due to a combination of spray materials and humid weather, particularly in early summer. The average size of apples is quite satisfactory except on drier soils or where the foliage has suffered severe injury from insects or diseases."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 717 September, 1948

Meteorological Observations

FOR

SEPTEMBER

1948

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation		
	Maximum		Minimum										
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water
1	75	3 P	48	7 A	65.5	55	11.2	NW	—	14			
2	75	2 P	50	1 A	62.5	72	4.4	E	16	3			
3	79	4 P	49	6 A	64.0	70	5.1	SE	48	6			
4	80	3 P	59	7 A	69.5	79	4.6	S	59	5	4:35 P	4:40 P	.01
5	86	4 P	58	3 A	72.0	71	7.4	S	31	6			T
6	88	2 P	61	3 A	74.5	74	6.5	S	60	6			T
7	85	4 P	60	3 A	72.5	73	7.1	SW	54	5			
8	86	4 P	57	7 A	71.5	78	7.3	SW	38	9			
9	87	3 P	46	6 A	66.5	77	7.3	SW	45	9	7:15 P	10:45 P	1.02
10	85	3 P	58	6 A	71.5	77	1.3	NW	64	10			
11	91	3 P	45	3 A	68.0	—	7.9	SE	31	9			
12	86	10 A	52	0 A	69.0	71	7.8	SE	57	10			
13	89	11 A	45	2 A	67.0	75	8.2	S	62	10			
14	72	10 A	60	6 A	66.0	72	10.2	NW	110	12			
15	71	—	45	6 A	58.0	—	10.2	NW	63	8			
16	67	5 P	40	6 A	53.5	60	10.3	NW	85	15			
17	72	2 P	34	6 A	53.0	54	5.3	SE	76	12			
18	88	2 P	58	6 A	73.0	76	4.0	SE	105	40	3:00 P	4:30 P	.16
19	79	3 P	57	7 A	68.0	79	8.3	NW	46	9			T
20	70	5 P	58	4 A	64.0	93	0.0	N	—	17	8:00 A	10:00 A	.44
21	67	2 P	46	6 A	56.5	62	8.5	N	131	17			T
22	68	2 P	35	5 A	51.5	64	8.8	N	72	9			
23	66	1 P	38	7 A	52.0	67	4.6	NE	77	12			
24	66	4 P	45	7 A	55.5	60	9.3	NE	153	15			
25	72	3 P	44	7 A	58.0	62	9.8	NW	99	15			
26	75	3 P	40	6 A	57.5	67	9.3	W	23	5			
27	81	3 P	36	6 A	58.5	62	9.8	W	23	5			T
28	83	3 P	44	6 A	63.5	60	9.3	S	27	9			
29	82	3 P	47	6 A	64.5	64	8.9	SW	22	7			
30	72	4 P	55	6 A	63.5	81	0.3	E	54	13	5:45 P	12:00 P	.28

* Based on least time required to blow one mile.

Lewis F. Wells, *Observer*

MONTHLY SUMMARY

SEPTEMBER, 1948		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.53, 17th	30.45	30.65, 1924
Minimum	29.15, 29th	29.57	28.41, 1938
Mean semi-daily	30.081	30.00	
Range	1.38	.88	1.99, 1938; 57, 1910
Air Temperature, in degrees F.			
Highest	91, 11th	87.7	97, 1895, 1929
Lowest	34, 17th	33.2	24.5, 1914
Mean	63.7	61.7	
Range	57	54.5	
Highest mean daily	74.5, 6th		
Lowest mean daily	51.5, 22nd		
Mean maximum	78.1		
Mean minimum	49		
Greatest daily range	46, 11th		
Least daily range	12, 14th, 20th		
Degree-days of heating load for month	104		
Degree—days cumulative for season	104		
Precipitation, in inches			
Precipitation	1.91	4.24	14.55, 1938; 52, 1914
Snow			
Maximum precip. in 24 hrs.	1.02, 9th		
Number of days with .01 or more	5	10	16, 1933; 3, 1903
Wind in miles			
Total movement	1731	3271	4,686, 1896; 1,414, 1894
Greatest daily movement	153, 24th		
Least daily movement	22, 29th		
Mean hourly velocity	2.6	4.5	
Maximum velocity	40, 18th	25.9	80, 1938
Wind, direction			
Prevailing direction	SW	WSW	
North, days	3		
Northeast, days	2		
East, days	2		
Southeast, days	5		
South, days	5		
Southwest, days	4		
West, days	2		
Northwest, days	7		
Weather			
Mean relative humidity, percent	69.8	73.6	
Mean cloudiness, percent	27.6	49.9	70, 1934; 23, 1947
Number of clear days	12	10	19, 1932; 2, 1907, 1928
Number of fair days	15	10	19, 1908; 3, 1889
Number of cloudy days	3	10	20, 1934; 3, 1941
Number of hours bright sunshine	213	201	255, 1916; 106, 1934
Percent of possible hours of bright sunshine	57.1	54.9	
Thunder and lightning	9th		
First frost	—	Sept. 21	Oct. 13, 1909; Aug. 22, 1894-95

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1947.

REMARKS

The weather for September continued fair, warm and dry. The 1.91 inches of precipitation was the least since 1940, and more than half was recorded by the storm of the 9th. While measurable rainfall occurred on 5 days, only 3 days are recorded as cloudy, the remainder being fair or clear. The mean temperature for the month was 2 degrees above normal at 63.7, and only about 2/3 the normal heating load accumulated in the month. The highest temperature, 91 degrees on the 11th, is the maximum for the month recorded 5 times in the past 10 years. The lowest temperature, 34 degrees on the 17th, did not produce frost at the station, although higher elevations to the east received their first frost of the season, killing most gardens and susceptible field crops. There were no high winds during the month.

W. H. Thies, Extension Professor of Horticulture, contributes the following report: "A relatively warm, dry September has shown some interesting effects on farm and garden crops. In Amherst, the official low temperature for the month was 34 degrees, and even in lower areas frost damage was light. This made it possible to harvest undamaged tomatoes, green beans, grapes, etc., as late as October 1. Another feature of the September weather was its dryness, with less than half the normal rainfall during the month. This has given farmers a good opportunity to harvest corn, potatoes, fruit crops, and on some farms, a late cutting of alfalfa.

Apples have been rather slow in coloring although they have hung on the trees fairly well. In fact, a considerable percentage of the McIntosh crop was harvested during the last week in September. This is about a week later than in some seasons past. Apple growers will find it necessary to maintain high humidity in storage for at least two reasons. Boxes were very dry at harvest time which means that the wood will absorb water from the apples. Furthermore, there was more russetting of fruit this season and as a result more shriveling may be expected unless a relative humidity of at least 90% is maintained."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 718 October, 1948

Meteorological Observations

FOR

OCTOBER

1948

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation		
	Maximum		Minimum										
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water
1	79	3 P	57	5 A	68.0	84	5.8	W	27	8	0 A	1:30 A	.37
2	77	4 P	53	7 A	65.0	67	6.8	N	83	14			
3	61	2 P	47	7 A	54.0	53	8.8	N	170	22			
4	62	3 P	32	6 A	47.0	52	9.1	NE	103	13			
5	59	3 P	35	6 A	47.0	61	0	N	53	8			
6	71	4 P	43	6 A	57.0	63	2.1	N	98	14			
7	71	2 P	42	4 A	56.5	59	5.0	N	107	15			
8	64	7 P	49	1 A	56.5	93	0	N	112	17			.43
9	66	4 P	50	6 A	58.0	67	7.3	W	73	10			T
10	65	3 P	45	6 A	55.0	65	2.8	S	99	13			
11	63	4 P	51	6 A	57.0	60	0	E	47	8			.15
12	70	1 P	57	6 A	60.5	81	0.5	SE	50	7			T
13	62	3 P	43	1 A	52.5	68	2.8	W	56	14			T
14	56	2 P	46	5 A	51.0	72	0.1	W	47	20			T
15	63	3 P	45	4 A	54.0	61	8.4	NW	154	20			T
16	66	4 P	29	7 A	47.5	66	7.2	S	70	13			T
17	74	2 P	52	1 A	63.0	71	3.6	S	199	20			
18	48	3 P	38	10 A	43.0	85	0.8	NE	185	17			.10
19	51	5 P	23	6 A	37.0	73	1.0	N	15	4	2:15 P	2:30 P	.05
20	49	2 P	32	6 A	40.5	84	1.3	N	12	13			
21	50	3 P	31	6 A	40.5	61	7.3	N	99	14			T
22	54	3 P	21	6 A	37.5	61	7.1	NW	22	6			T
23	54	2 P	29	6 A	41.5	73	0.3	NE	43	20			T
24	53	4 P	42	7 A	47.5	61	0	N	221	20	6:00 A	9:00 A	.01
25	52	3 P	47	8 A	49.5	81	0	N	302	22	6:00 A	9:00 A	.02
26	68	2 P	48	6 A	58.0	49	5.5	N	292	22			
27	66	3 P	35	7 A	50.5	53	7.8	NW	107	12			
28	68	3 P	30	7 A	49.0	62	6.6	SE	16	3			
29	61	4 P	34	7 A	47.5	65	5.6	NW	97	17			
30	65	4 P	30	8 A	47.5	60	6.8	N	47	14	6:00 A	8:00 A	T
31	72	2 P	29	6 A	50.5	60	6.4	N	19	7		8:00 A	T

* Based on least time required to blow one mile.

LEWIS F. WELLS, *Observer*

MONTHLY SUMMARY

OCTOBER 1948		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.65, 22nd	30.53	30.68, 1929
Minimum	29.68, 9th	29.42	29.00, 1926
Mean semi-daily	30.117	30.06	
Range	0.97	1.11	1.47, 1926, .76, 1899
Air Temperature, in degrees F.			
Highest	79, 1st	79.4.	90.5, 1908
Lowest	21, 22nd	23.4	57.4, 1947, 17, 1936
Mean	51.3	50.5	
Range	58	56.0	
Highest mean daily	68, 1st		
Lowest mean daily	37, 19th		
Mean maximum	62.6		
Mean minimum	40.02		
Greatest daily range	43, 31st		
Least daily range	5, 25th		
Degree-days of heating load for month	429		
Degree-days cumulative for season	533		
Precipitation, in inches			
Precipitation	1.13	3.29	8 81, 1911; .01, 1924
Snow			
Maximum precip in 24 hrs.	0.43, 8th		
Number of days with .01 or more	7	9	15, 1913; 1, 1897, 1924
Wind in miles			
Total movement	3025	4074	5.467, 1910; 2,540, 1894
Greatest daily movement	302, 25th		
Least daily movement	12, 20th		
Mean hourly velocity	4.07	5.4	
Maximum velocity	22, 3rd, 25th, 26th	29.5	42, 1937
Wind, direction			
Prevailing direction	N	W	
North, days	14		
Northeast, days	3		
East, days	1		
Southeast, days	2		
South, days	3		
Southwest, days	1		
West, days	4		
Northwest, days	3		
Weather			
Mean relative humidity, percent	66.8	69.0	
Mean cloudiness, percent	40	48	67, 1932, 18, 1924
Number of clear days	4	10	21, 1938; 1, 1911
Number of fair days	13	10	17, 1924; 3, 1938
Number of cloudy days	14	11	19, 1896; 3, 1924
Number of hours bright sunshine	126.8	175.0	232, '23, '38; 91, 1913
Percent of possible hours of bright sunshine	34	51.3	
Thunder and lightning	—		
First frost	—	Sept. 21	Aug. 22,'94,'95; Oct. 15,'39

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1947.

REMARKS

The weather for the month of October was very near the normal excepting the amount of precipitation. Of the 1.13 inches received, 0.43 inches was received by the storm of the 8th and the drouthy condition beginning in July has not been adequately relieved. Since the storm of July 13 only 6.96 inches of water has been received and only 3 storms recorded precipitation in excess of 0.5 inches. Since the normal precipitation July through October is 15.71 inches, there is a reason that streams and wells are observed to be very low.

W. H. Thies, Extension Professor of Horticulture, contributes the following report: "In general, October weather was very favorable for farm work. There was little more than an inch of rainfall in Western Massachusetts and the mean temperature was slightly above normal. On one occasion the temperature dropped to 21° causing some worry among apple growers with fruit still on the trees. A few farmers experienced a water shortage. If the soil becomes thoroughly wet before it freezes, conifers will tend to suffer less drying from winter winds.

Winter cover crops and new seedings look unusually well. Aside from the relatively mild weather this may be due, according to Dr. W. G. Colby of the Agronomy Department, to the fact that there has been so little rain to leach the nitrates from the soil. Consequently, cover crops have had a better supply of nitrogen and are therefore making better growth than would have been the case if heavy rains had fallen during October."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 719 November 1948

Meteorological Observations

FOR

NOVEMBER

1948

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	60	2 P	43	7 A	51.5	59	3.9	SE	66	11				
2	56	3 P	28	7 A	42.0	65	4.9	SE	39	7				
3	54	4 P	25	7 A	38.5	76	0.5	N	31	7	7:45 A		.06	
4	59	8 P	47	0 A	53.0	89	0	S	45	8	11:45 A	11:45 P	1.27	
5	70	2 P	57	7 A	63.5	78	2.1	S	65	13			T	
6	72	2 P	61	2 A	66.5	80	0	S	206	32			T	
7	64	3 P	54	7 A	59.0	61	2.0	W	263	22	4:00 A	10:00 A	.52	
8	63	3 P	40	5 A	51.5	54	1.2	SE	90	6			T	
9	61	2 P	33	4 A	47.0	80	1.9	SE	53	13				
10	70	6 A	59	0 A	64.5	89	0	SE	202	25	8:30 A	11:30 P	.89	
11	54	3 P	40	7 A	47.0	55	3.3	NW	191	18				
12	51	2 A	29	6 A	40.0	—	0	E	45	10			T	
13	54	3 P	46	0 A	50.0	75	0	W	154	48	4:30 P	8:00 P	.02	
14	51	2 P	35	7 A	43.0	48	4.5	NW	240	13			T	
15	50	3 P	33	7 A	41.5	70	0.3	NW	59	12			T	
16	54	2 P	32	6 A	43.0	59	4.2	S	66	10				
17	56	4 P	40	0 A	48.0	81	0	SW	139	17	6:00 A	8:00 A	.02	
18	59	4 P	35	6 A	47.0	35	4.2	W	76	15	6:00 A	8:00 A	T	
19	52	2 P	27	7 A	39.5	85	2.1	N	32	4	12:00 N	12:00 M	.98	
20	58	1 P	46	0 A	52.0	98	0.5	N	70	12	0 A	8:15 A	.83	
21	52	1 P	35	6 A	43.5	66	0.9	S	92	15			T	
22	45	3 P	37	8 A	41.0	88	0	SE	25	3	4:15 P	12:00 M	.19	
23	47	4 P	41	0 A	44.0	87	0	NW	22	4	0 A	3:15 A	.10	
24	47	3 P	41	8 A	44.0	96	0.4	N	56	7	6 A	12 N	.09	
25	48	3 P	28	3 A	38.0	73	0.3	NW	110	18				
26	52	3 P	26	8 A	39.0	73	4.1	SE	44	9				
27	56	1 P	37	2 A	46.5	74	0.2	NW	179	28	2:45 A	1:00 P	.18	
28	46	12 N	38	7 A	42.0	57	0.2	N	185	13			T	
29	36	2 P	30	8 A	33.0	100	0	NE	105	9	6:30 A	12:30 P	.07	.75
30	40	1 P	20	7 A	30.0	96	2.1	S	26	5				

* Based on least time required to blow one mile.

Lewis F. Wells, *Observer*

MONTHLY SUMMARY

NOVEMBER, 1948		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.45, 2nd, 3rd	30.59	30.87, 1932
Minimum	29.45, 15th	29.30	28.73, 1904
Mean semi-daily	30.059	30.05	
Range	1.00	1.29	1.84, 1904; 89, 1943
Air Temperature, in degrees F.			
Highest	72, 6th	66.0	75, 1924, 1938
Lowest	20, 30th	12.9	4, 1938
Mean	46.3	38.9	44.1, 1931; 33.6, 1901
Range	52	53.0	
Highest mean daily	64.5, 10th		
Lowest mean daily	30, 30th		
Mean maximum	54.6		
Mean minimum	38.1		
Greatest daily range	29, 3rd		
Least daily range	6, 23rd, 24th, 29th		
Degree-days of heating load for month	563		
Degree-days cumulative for season	1088		
Precipitation, in inches			
Precipitation	5.22	3.41	8.64, 1927;.63, 1917
Snow	0.75	2.34	13.50, 1938
Maximum precip. in 24 hrs.	1.27, 4th		
Number of days with .01 or more	13	9	22, 1921; 2, 1904
Wind in miles			
Total movement	2976	4531	5,978, 1906; 2,589, 1889
Greatest daily movement	263, 7th		
Least daily movement	22, 23rd		
Mean hourly velocity	4.1	6.3	
Maximum velocity	48, 13th	30.3	44, 1938
Wind, direction			
Prevailing direction	SW	WNW	
North, days	5		
Northeast, days	1		
East, days	1		
Southeast, days	7		
South, days	6		
Southwest, days	1		
West, days	3		
Northwest, days	6		
Weather			
Mean relative humidity, percent	71.6	70.6	
Mean cloudiness, percent	51	55.1	78, 1947; 34, 1917
Number of clear days	0	6	15, 1903; 1, 1900, 1911, 1927
Number of fair days	7	9	16, '12; 4, '89, '30, '32, '35
Number of cloudy days	23	15	24, 1927; 9, 1905, 1917
Number of hours bright sunshine	44	121	182, 1903; 66, 1927
Percent of possible hours of bright sunshine	14.9	41.3	
Thunder and lightning	13th		
First frost	—	Nov. 6	Oct. 10 '25; Dec. 13, 1941

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1947.

REMARKS

The weather for the month was both warmer and wetter than normal. Precipitation of 5.22 inches did not exceed last year's 5.63, (normal is 3.41 inches) but in both years November has ended periods of lower than normal precipitation. In both years the late summer and fall have shown very light rainfall producing fire hazards of considerable proportions in woodlands, causing dry wells and low streams, and making the growth of some fall-planted crops very slight until aided by favorable conditions in November.

The mean temperature for the month was 46.3 degrees compared to a normal mean of 38.9 degrees. This was the highest mean daily temperature this station has recorded for the month. The previous record of 44.1 degrees was recorded in 1931.

The heating load of 563 degree-days is the least for the month since records have been kept at this station. The cumulative heating load for the season now stands at 1088 degree-days, which is 301 below normal for the end of the month.

W. H. Thies, Extension Professor of Horticulture, contributes the following report: "The mildest November in recent years has influenced growing things in several ways. With little or no frost in the soil, rainfall has penetrated very largely where it fell. This will tend to benefit plants on drier soils next spring. In the case of conifers, particularly, it will tend to prevent drying from winter winds. The possibilities as regards trunk injury in fruit trees when the weather turns cold will depend, in part, on the degree of maturity. Except where trees were stimulated to make late fall growth, little damage is anticipated.

Rye cover crops have made unusually good growth thus adding more organic matter to the soil, and fall seedings are off to a good start. Strawberry plants have developed well during the fall season and there has been little need for mulching since the lowest temperature in Amherst was 20°F. on November 30. The mild fall weather, according to E. H. Wheeler, Extension Entomologist, has resulted in the laying of many aphis eggs, the adult insects having survived later than usual."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 720 December, 1948

Meteorological Observations

FOR

DECEMBER

1948

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	46	2 P	26	0 A	36	67	0	NW	62	18			T	
2	46	2 P	25	7 A	35.5	65	3.0	S	65	8				
3	44	3 P	31	7 A	37.5	77	0	NE	62	8				
4	52	3 P	30	2 A	41	75	0.3	N	65	8				
5	55	3 P	28	7 A	41.5	67	4.1	NW	62	7				
6	48	4 P	35	0 A	41.5	88	0	W	70	20	8 A	5:45 P	.20	
7	55	3 P	34	6 A	45.5	76	2.0	SE	149	15				
8	50	1 P	31	8 A	40.5	59	0.3	NW	60	29				
9	42	3 P	26	7 A	34	61	1.2	W	57	7				
10	37	12 P	25	7 A	31	81	0	NW	65	22	12 N	2:00 P	.01	T
11	37	2 P	23	7 A	30	86	0	SW	70	10				
12	42	12 P	22	8 A	32	92	0	NW	43	10	4:45 P	7:00 P	.17	
13	52	4 P	36	4 A	44	51	3.4	W	130	20			T	
14	42	2 P	35	7 A	38.5	51	4.0	N	214	28				
15	31	2 P	23	5 A	27	74	0	NE	92	13	7:45 P	9:45 P	.06	0.5
16	34	9 P	26	0 A	30	89	0	N	101	9	4:00 P	12 P	.13	0.5
17	39	3 P	30	7 A	34.5	89	0	NW	93	25	0 A	1:30 A	.03	
18	31	8 A	28	5 A	29.5	69	1.9	NW	210	15				
19	24	7 P	15	6 A	19.5	100	0	NW	74	17	1:30 P	12 P	.10	
20	32	12 P	16	7 A	24	86	0	S	104	4	0 A	1 A	.01	
21	29	1 P	8	7 A	18.5	98	0	S	25	11			T	
22	43	2 P	24	5 A	33.5	76	0	SE	164	17				
23	36	12 N	31	6 A	33.5	66	0.5	W	136	17				
24	24	1 P	17	8 A	20.5	55	2.8	NW	198	22				
25	18	2 P	3	6 A	10.5	78	0	N	55	22			T	T
26	20	1 P	7	8 A	13.5	50	3.5	N	211	22				
27	25	3 P	2	2 A	13.5	60	0	S	56	5				
28	41	3 P	24	5 A	32.5	—	0	S	72	9				
29	51	12 P	18	4 A	34.5	100	0	S	51	15	8 A	12 P	.61	
30	58	7 P	50	11 A	54	97	0	S	221	48	0 A	12 P	1.03	
31	56	7 A	40	12 P	48	88	0	E	367	40	0 A	12 P	.52	

* Based on least time required to blow one mile.

LEWIS F. WELLS, *Observer*

Correction: An error in air temperature readings on page 3 in the November 1948 buletin gives 4°, 1938 as the extreme low. The correct reading is —4°, 1938.

MONTHLY SUMMARY

December, 1948		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.47, 26th	30.66	30.96, 1889
Minimum	28.92, 31st	29.27	28.85, 1915
Mean semi-daily	29.976	30.06	
Range	1.55	1.38	1.78, 1895; 1.01, 1892
Air Temperature, in degrees F.			
Highest	58, 30th	54.3	65.5, 1908
Lowest	2. 27th	—1.09	—22.5, 1917
Mean	32.4	27.5	36.9, 1891; 17.1, 1917
Range	56	56.2	
Highest mean daily	54, 30th		
Lowest mean daily	10.5, 25th		
Mean maximum	40.0		
Mean minimum	24.6		
Greatest daily range	33, 29th		
Least daily range	3, 18th		
Degree-days of heating load for month	1011		
Degree-days cumulative for season	2099		
Precipitation, in inches			
Precipitation	2.87	3.39	7.77, 1901; .58, 1943
Snow	1.0	8.50	26.50, '02, T, 1891, 1943
Maximum precip. in 24 hrs.	1.03, 30th		
Number of days with .01 or more	11	10	17, 1902; 4, 1892, 1943
Wind in miles			
Total movement	3404	4710	6,694, 1925; 3,239, 1918
Greatest daily movement	367, 31st		
Least daily movement	25, 21st		
Mean hourly velocity	4.6	6.3	
Maximum velocity	48, 30th	31.4	48, 1938, 1943, 1944
Wind, direction			
Prevailing direction	NW	WNW	
North, days	5		
Northeast, days	2		
East, days	1		
Southeast, days	2		
South, days	7		
Southwest, days	1		
West, days	4		
Northwest, days	9		
Weather			
Mean relative humidity, percent	76	69.4	
Mean cloudiness, percent	50	54.9	71, 1929; 39, 1919
Number of clear days	0	8	15, 1890; 2, 1922, 1933
Number of fair days	6	9	16, '09; 4, '89,'30,'31,'36,'38
Number of cloudy days	25	14	23, '33; 7, '09, '23
Number of hours bright sunshine	27	128	172, 1896; 63, 1933
Percent of possible hours of bright sunshine	9.5	45.2	
Thunder and lightning	—		
First snow	—	Nov. 6	

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1947.

ANNUAL SUMMARY

Annual, 1948		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.98, Feb. 24	30.81	31.05, 1920, 1943
Minimum	28.92, Dec. 31	28.95	28.41, 1938
Mean semi-daily	30.012	30.01	
Range	2.06	1.85	2.47, 1938; 1.38, 1933
Air Temperature, in degrees F.			
Highest	100, Aug. 26	95.7	104, 1911
Lowest	–16, Jan. 24	—12.2	–26, 1904
Mean	48.4	47.4	49.8, 1921; 44, 1904
Range	116.0	107.8	
Highest mean daily	84.5, Aug. 26		
Lowest mean daily	4, Jan. 24		
Mean maximum	59.0	57.8	
Mean minimum	37.7	36.5	
Greatest daily range	54, Mar. 6		
Least daily range	3, Jan. 13 & Dec. 18		
Precipitation, in inches			
Precipitation	40.01	43.70	59.00, 1938; 30.68, 1908
Snow	52.25	47.78	89.00, 1893; 24.50, 1919
Maximum precip. in 24 hrs.	1.84, Aug. 12		
Number of days with .01 or more	119	124	146, 1945; 96, 1924
Wind, in miles			
Total movement	40,278	52,223	63,571, 1908; 36,257. 1894
Greatest daily movement	403, Feb. 15		
Least daily movement	12, Oct. 20		
Mean hourly velocity	4.8	5.8	
Maximum velocity	48, Feb. 14, Nov. 13, Dec. 30	39.5	80, 1938
Wind, direction			
Prevailing direction	W	W	
North, days	58		
Northeast, days	26		
East, days	20		
Southeast, days	53		
South, days	63		
Southwest, days	20		
West, days	42		
Northwest, days	79		
Weather			
Mean relative humidity, percent	67.8	67.6	
Mean cloudiness, percent	58.8	51.7	60, '98, '01, '02; 41, '08, '24
Number of clear days	85	116	217, 1941; 59, 1927
Number of fair days	127	123	182, 1912; 64, 1936
Number of cloudy days	154	126	179, '01, '02; 71, 1910, 1941
Number of hours bright sunshine	1886	2,353	3038, 1941; 1864. 1902
Percent of possible hours of bright sunshine	40.1	52.8	
Last Snow	Apr. 3	April 15	Mar.14,'10; May 11,'07,'45
First Snow	Nov. 29	Nov. 6	Oct. 10, '25; Dec. 13, '41
Last Frost	Apr. 22	May 14	Apr. 14, '43; June 8, '32
First Frost	Oct. 16	Sept. 21	Aug. 22,'94,'95; Oct. 13,'09

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 721 January, 1949

Meteorological Observations

FOR

JANUARY

1949

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean									
	Degrees	Time	Degrees	Time				Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	40	0 A	28	8 A	34	85	0	SE	138	20	OA	12:00 P	.04	1.5
2	33	1 P	27	0 A	30	63	0	W	167	22				
3	37	2 P	20	7 A	22.5	69	4.4	NW	110	17				
4	41	2 P	26	7 A	27	80	4.0	W	69	4				
5	37	9 P	27	0 A	30	100	0	W	10	22	—	12:00 P	1.03	
6	55	2 P	34	0 A	44.5	71	3.3	W	191	22	OA	8:45 A	.91	
7	46	12 N	33	6 A	39.5	69	0.3	SW	167	17				
8	53	2 P	33	6 A	43	78	1.7	N	98	14				
9	43	2 P	29	6 A	36	92	0	N	33	4				
10	45	1 P	38	8 A	41.5	88	0.3	NW	32	10				
11	33	2 P	30	8 A	31.5	50	0.3	NE	162	13				
12	29	3 P	16	3 A	22.5	67	0	NW	85	25				
13	38	1 P	26	7 A	32	57	2.4	NW	147	20				
14	41	12 N	19	12 P	30	59	0.8	N	142	22				
15	31	3 P	13	7 A	22	68	4.0	SE	109	10				
16	51	3 P	28	0 A	39.5	69	2.0	SE	174	17	7:30 A	8:30 A	T	T
17	51	2 P	37	3 A	44	88	0.4	NW	90	20				
18	39	3 P	29	7 A	34	86	0	E	82	12				
19	48	5 P	35	0 A	41.5	80	0	NW	119	28	3:30 A	7:00 A	.10	
20	38	3 P	26	12 P	32	56	5.4	NW	291	20				
21	30	3 P	17	7 A	43.5	82	0	NE	122	15	5:45 P	12:00 P	.36	1.75
22	41	1 P	25	0 A	33	86	5.5	N	100	22	OA	7:00 A	.36	1.25
23	35	2 P	19	7 A	27	65	2.9	N	62	13				
24	39	12 P	27	2 A	33	91	0	S	34	14	OA	9:30 A	.16	0.75
25	41	3 A	23	12 P	32	63	1.7	N	143	14				
26	23	0 A	17	8 A	20	77	0	N	113	12	10:00 A	12:00 P	.34	2.00
27	31	2 P	18	0 A	24.5	88	0	NW	59	10	OA	8:15	.07	.25
28	37	12 P	25	0 A	31	90	0	S	65	28	2:00 A	12:00 N	.41	2.50
29	35	2 P	16	12 P	25.5	46	3.4	W	156	28				
30	30	2 A	9	7 A	19.5	42	7.6	S	114	13				
31	30	12 P	10	4 A	20	87	0	NW	41	22	10:00 A	9:00 P	.74	4.50

* Based on least time required to blow one mile.

LEWIS F. WELLS, *Observer*

MONTHLY SUMMARY

January, 1949		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.95, 21st	30.70	31.00, 1927
Minimum	29.37, 2nd	29.20	28.55, 1913
Mean semi-daily	30.165	30.07	
Range	1.58	1.50	2.18, 1913; 0.97, 1896
Air Temperature, in degrees F.			
Highest	55, 6th	51.1	66.0, 1932
Lowest	9, 30th	—7.1	—26.0, 1904
Mean	31.8	24.2	34.2, 1913; 13.9, 1918
Range	46	58.2	
Highest mean daily	44.5, 6th		
Lowest mean daily	19.5, 30th		
Mean maximum	38.7		
Mean minimum	24.5		
Greatest daily range	23, 16th		
Least daily range	3, 11th		
Degree Days of Heating Load for month	1265		
Degree Days cumulative for Season	3817		
Precipitation, in inches			
Precipitation	4.52	3.61	7.15, 1898; 1.07, 1896
Snow	14.5	13.32	33, 1898, 1923; 1.50, '08
Maximum precip. in 24 hrs.	1.03, 5th		
Number of days with .01 or more	11	11	15, '93, '20; 4, 1901
Wind in miles			
Total movement	3525	5055	7770, 1908; 2896, 1895
Greatest daily movement	291, 20th		
Least daily movement	10, 5th		
Mean hourly velocity	4.7	6.8	
Maximum velocity	28, 18th, 28th, 29th	32.7	47, 1938
Wind, direction			
Prevailing direction	NW	WNW	
North, days	7		
Northeast, days	2		
East, days	1		
Southeast, days	3		
South, days	3		
Southwest, days	1		
West, days	5		
Northwest, days	9		
Weather			
Mean relative humidity, percent	74	70.1	
Mean cloudiness, percent	64	55	78, 1932; 37, 1908
Number of clear days	1	9	20, 1944; 2, 1914
Number of fair days	8	9	18, 1890, 1926; 3, 1916, '44
Number of cloudy days	22	13	22, 1923, '31; 4, 1920, '39
Number of hours bright sunshine	50.4	137	214, 1920; 74, 1932
Percent of possible hours of bright sunshine	17.1	46.7	
Thunder and lightning	—		
	?		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1947.

REMARKS

The weather for the month of January was characterized by its mildness in comparison with the same month of last year. With a mean daily temperature of 31.8 degrees for the month this was the warmest January since 1933, but the maximum of 55 degrees was reached in 1947. The householder noticed the effect on his purchased fuel with a heating load of 1029 degree-days for the month and a cumulative load of 3128 for the season. Normal for the month and season are 1265 and 3817 degree-days respectively, while a year ago these values stood at 1459 degree-days for the month and 3932 for the season.

The fall of snow was slightly above normal, with total precipitation nearly an inch above normal for the month. Following the fall on the 31st, the month ended with 10.5 inches of snow on the ground. While the rainfall at the end of the previous month had relieved anxiety over short water supply for wells, the more than average precipitation and the snow blanket assured good ground water supply for the remainder of the winter. These combined with less than normal wind movement relieved vegetation of danger of dessication which could have taken place had the relatively mild temperatures been accompanied by drought conditions.

W. H. Thies, Extension Professor of Horticulture, contributes the following report: "The effect on fruit buds of an unseasonably mild winter is of interest to fruit growers and consumers alike. Recent warm weather has caused some swelling of fruit buds although apples and pears have apparently developed less than peaches."

According to J. S. Bailey, "Peach fruit buds appear large for this time of year. This is not surprising since the winter rest period ended several weeks ago. The warm weather has also caused internal changes which make the buds more susceptible to winter injury. Should really cold weather come, however, there may still be little injury if the temperature drops slowly; if it drops rapidly to several degrees below zero, severe injury may be expected.

"On February 4 there were practically no dead buds in the University peach orchard. If 10 to 15% of the buds are alive on Washington's Birthday, the chances for a crop are excellent."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 722 February, 1949

Meteorological Observations

FOR

FEBRUARY

1949

H. N. STAPLETON

OBSERVATORY
Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	34	2 P	23	6 A	28.5	54	6.9	W	158	22			T	T
2	28	1 P	15	12 P	21.5	60	4.6	W	254	28				
3	31	1 P	5	7 A	18.0	54	4.3	SE	77	7				
4	29	2 P	21	6 A	25.0	86	0	NW	71	6	7:30A	8P	.23	2.00
5	30	12 N	11	12 P	20.5	58	8.9	N	121	22			T	T
6	30	3 P	-1	7 A	14.5	54	9.8	NW	—	—				
7	41	4 P	11	12 P	26.0	77	2.7	N	—	28	—	—	.15	T
8	42	3 P	16	7 A	29.0	68	10.3	S	118	15				
9	48	1 P	28	12 P	38.0	79	8.4	NW	148	28				
10	38	2 P	16	7 A	27.0	64	2.9	NW	66	7				
11	29	11 A	10	12 P	19.5	60	10.4	N	211	28				
12	32	4 P	0	7 A	16.0	72	8.8	SE	103	15				
13	51	4 P	35	0 A	43.0	68	3.4	SE	156	11				
14	51	2 P	35	9 A	43.0	76	3.0	N	42	7				
15	47	11 P	37	7 A	42.0	76	0.8	NE	41	28	2:30A	10:45P	.52	
16	42	1 P	35	12 P	38.5	58	0	W	150	15	10:15P	12:00P	.12	0.75
17	35	0 A	24	12 P	29.5	65	9.7	W	272	48	0A	2:30A	.19	1.25
18	42	5 P	12	6 A	27.0	64	10.6	SE	142	20				
19	54	2 P	33	7 A	43.5	62	6.9	S	150	8				
20	46	3 P	30	12 P	38.0	84	3.9	N	76	20	0A	7:30A	.48	
21	39	4 P	22	7 A	30.5	67	10.9	N	142	13				
22	38	10 P	28	2 A	33.0	84	0	S	111	10				
23	45	2 P	31	12 P	38.0	77	10.1	N	162	25				
24	48	3 P	26	7 A	37.0	65	10.0	N	53	9				
25	37	0 A	34	8 A	35.5	94	0	N	90	22	6:45A	8P	.30	.25
26	37	11 A	26	12 P	31.5	63	10.1	NW	280	22				
27	41	3 P	18	6 A	29.5	66	11.1	NW	122	14				
28	34	12 N	24	3 A	29.0	90	0	NW	86	32	3P	12P	.48	9.00

* Based on least time required to blow one mile.

LEWIS F. WELLS, *Observer*

MONTHLY SUMMARY

February, 1949		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.59, 12th	30.63	31.05, 1920
Minimum	29.66, 15th	29.24	28.56, 1895
Mean semi-daily	30.116	30.04	
Range	0.93	1.38	1.89, '00, '08; .88, '13, '31
Air Temperature, in degrees F.			
Highest	54, 19th	50.5	65.0, 1930
Lowest	-1, 6th	—7.4	–23, 1943
Mean	30.4	23.7	32.6, 1890; 11.6, 1934
Range	55	58	
Highest mean daily	43.5, 19th		
Lowest mean daily	14.5, 6th		
Mean maximum	39.3	32.8	
Mean minimum	21.6	14.5	
Greatest daily range	32, 12th		
Least daily range	3, 25th		
Degree-days of heating load for month	958		
Degree-days cumulative for season	4086		
Precipitation, in inches			
Precipitation	2.47	3.19	8.12, 1900; 0.62, 1901
Snow	13.25	13.99	48.75, 1893; 0.50, 1937
Maximum precip. in 24 hrs.	.52, 15th		
Number of days with .01 or more	8	10	15, '93, '20; 4, 1901
Wind in miles			
Total movement	3402	4776	6445, 1896; 3438, 1892
Greatest daily movement	280, 26th		
Least daily movement	41, 15th		
Mean hourly velocity	5.5	7.1	
Maximum velocity	48, 17th	31.7	50, 1946
Wind, direction			
Prevailing direction	NW	WNW	
North, days	9		
Northeast, days	1		
East, days	0		
Southeast, days	4		
South, days	3		
Southwest, days	0		
West, days	4		
Northwest, days	7		
Weather			
Mean relative humidity, percent	69	66.6	
Mean cloudiness, percent	41.6	50.9	66, '90, '27; 31, 1905
Number of clear days	13	10	19, 1941; 2, 1927
Number of fair days	6	8	16, 1920; 2, 1936
Number of cloudy days	9	10	16, 1894; 2, 1920
Number of hours bright sunshine	168.5	158	221, 1924; 110, '27, '38
Percent of possible hours of bright sunshine	57.1%	53.4	
Thunder and lightning	—		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1947.

REMARKS

The weather for the month continued the mildness recorded for the first month of the new year. With a mean daily temperature of 30.4 degrees, it was the warmest February since 1890 which recorded 32.6 degrees, and is approached only by February 1937 which showed 30.0 degrees. Against a normal mean daily temperature of 23.7 and last year's 21.4 degrees the month showed a mildness that was appreciated. The house-holder had to supply fuel for only 958 degree-days of heating load against last year's 1264 and the normal 1165 degree-days. At the end of the month the cumulative load for the season stood at 4086 against last year's 5196 degree-days and the normal 4982, or only 82 per cent of normal.

The snow fall was nearly normal but the precipitation of 2.47 inches of water was 0.72 inches less than the mean for the month. Some amount of snow covered the ground until the 19th, and from that date the ground was bare until the storm of the 28th. Following a trace of snow on the 5th, the morning of the 6th recorded the lowest temperature of the winter, -1 degree. Excepting the zero recorded the morning of the 12th, the other cold mornings of the month were merely "frosty" and coupled with warm afternoons started the maple sugar season.

W. H. Thies, Extension Professor of Horticulture, contributes the following report: "One might think that an unseasonably mild winter would cause very early development in all kinds of vegetation. But, fortunately, plant life is not greatly influenced by above normal winter temperatures. The mean temperature during February was more than 6° above normal and yet apple buds, although somewhat swollen, remain in a more or less dormant condition. If cool weather prevails during the next few weeks, McIntosh apple trees may still come into bloom around May 10 to 15, as usual.

Concerning the effect of recent weather on forest trees, A. D. Rhodes of the Forestry Department says, "The mild winter has to date been generally favorable for forest trees. Plentiful rainfall, which fell on soil relatively free of frost and therefore well able to absorb it, has restored any deficit in soil moisture that may have existed as an aftermath of last summer's drought. Winter killing of conifers resulting from excessive transpiration, which might have been anticipated, is not likely to occur. Growth this spring should begin fairly early and proceed rapidly unless the weather at that time is unseasonably cold. Cold spring weather may damage buds of some trees, especially those not well protected, which already have shown some response to the spring-like conditions during February."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 723 March, 1949

Meteorological Observations

FOR

MARCH

1949

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 feet. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	36	4 P	23	12 P	29.5	92	5.3	NW	408	32	0A	12A	0.29	7.0
2	35	1 P	16	6 A	25.5	79	10.9	NW	218	15				
3	41	12 N	18	6 A	29.5	70	11.3	NW	118	20				
4	37	4 P	9	7 A	23.0	85	11.2	SE	78	13				
5	54	2 P	29	0 A	41.5	79	8.1	S	139	12				
6	51	2 P	38	8 A	44.5	81	4.4	N	86	12				
7	35	2 P	21	12M	28.0	59	9.1	NE	277	22				
8	47	5 P	15	6 A	31.0	35	3.1	NE	212	15				
9	57	4 P	25	6 A	41.0	45	8.8	N	126	14				
10	46	2 P	28	6 A	37.0	60	0	N	119	10				
11	38	2 P	32	7 A	35.0	100	0	NE	102	15	6A	8P	0.03	1.0
12	34	1 P	30	7 A	32.0	73	1.1	W	301	40				
13	36	6 P	22	7 A	29.0	53	0	W	330	28				
14	47	5 P	26	7 A	36.5	55	6.4	W	206	22				
15	39	2 P	29	4 A	34.0	48	5.2	NW	183	18				
16	36	3 P	20	7 A	28.0	42	8.2	NW	298	22				
17	39	5 P	22	5 A	30.5	45	9.9	W	236	28	3:30A	4:30A		T
18	29	12 N	22	5 A	25.5	94	0	NW	100	18	10:30A	6:00P		2.5
19	31	2 P	9	7 A	20.0	46	8.3	NW	260	17				
20	37	5 P	2	7 A	19.5	53	9.3	SW	50	8				
21	57	5 P	22	4 A	39.5	82	6.2	S	209	25				
22	64	3 P	43	7 A	53.5	83	6.0	S	258	25				
23	68	4 P	41	12 P	54.5	94	0.8	S	217	17	3:00A	9:30A	0.71	
24	58	6 P	32	7 A	45.0	66	8.7	N	143	13				
25	58	3 P	30	7 A	44.0	71	2.2	SW	53	13				
26	75	4 P	42	7 A	58.5	76	7.3	N	136	10				
27	72	5 P	56	6 A	64.0	90	0.2	SW	94	11				
28	63	3 A	56	8 A	59.5	52	8.8	S	371	32				
29	66	4 P	38	7 A	52.0	46	7.9	NE	209	22				
30	60	4 P	37	6 A	48.5	73	4.5	NE	109	13				
31	51	4 P	37	7 A	44.0	58	0.8	NE	122	13				

* Based on least time required to blow one mile.

Lewis F. Wells, *Observer*

MONTHLY SUMMARY

March, 1949		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.64, 20th	30.57	31.05, 1943
Minimum	29.31, 1st	29.24	28.47, 1914
Mean semi-daily	29.94	30.04	
Range	1.34	1.34	2.10, 1914; 0.85, 1915
Air Temperature, in degrees F.			
Highest	75, 26th	63.8	85, 1929
Lowest	2, 20th	6.1	-7.5, 1906
Mean	38.2	34.4	
Range	73	57.6	
Highest mean daily	64, 27th		
Lowest mean daily	19.5, 20th	43.2	
Mean maximum	48.3	25.4	
Mean minimum	28.5		
Greatest daily range	35, 20th, 21st		
Least daily range	4, 12th		
Degree-days of heating load for month	831		
Degree-days cumulative for season	4917		
Precipitation, in inches			
Precipitation	1.03	3.70	7.89, 1942; 0.12, 1915
Snow	10.5	7.47	27, 1899; 0, 1921
Maximum precip. in 24 hrs.	.71		
Number of days with .01 or more	4	11	17,1890,1913,1936; 3,1915
Wind in miles			
Total movement	5768	5944	8182, 1896; 3006, 1905
Greatest daily movement	408, 1st		
Least daily movement	50, 20th		
Mean hourly velocity	7.8	7.7	
Maximum velocity	40, 12th	31.2	48, 1932, 1939, 1941, 1942
Wind, direction			
Prevailing direction	NW	WNW	
North, days	5		
Northeast, days	6		
East, days	0		
Southeast, days	1		
South, days	5		
Southwest, days	3		
West, days	4		
Northwest, days	7		
Weather			
Mean relative humidity, percent	67	64.2	
Mean cloudiness, percent	57	51.8	68,1901; 27, 1915
Number of clear days	13	11	22, 1924; 3, 1901
Number of fair days	9	10	17, 1900; 1, 1943
Number of cloudy days	9	10	21, 1901; 1, 1915
Number of hours bright sunshine	174.1	199	292, 1924; 93, 1901
Percent of possible hours of bright sunshine	47	53.6	
Thunder and lightning	—		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1947.

REMARKS

While the weather for the month continued warmer than normal, the 75 degree maximum recorded on the 26th was 10 degrees less than the record March temperature of 1929. In nine other years of record, the mean daily temperature has exceeded the 38.2 degrees of the past month, but never before have the first three months of the year combined greater-than-average mean daily temperatures to produce the mildness of the past season. The heating load for the month was 831 degree-days against a normal of 950 and last year's 932, while the season's cumulative load at the end of the month totaled 4917 against a normal of 5932 and last year's 6128 degree-days.

Except for light snow on the 18th, snow cover disappeared on the 7th. Precipitation was very light at 1.67 inches total water in the more than normal 10.5 inches of snow fall. Measurable precipitation occurred on only five days of the month even though cloudiness exceeded normal and hours of bright sunshine were less than normal.

W. H. Thies, Extension Professor of Horticulture, contributes the following report: 'In spite of the many balmy days during the winter, vegetation is still no more than two weeks ahead of normal. A cold spell now and then, as for example, a low temperature of 2° on March 20 have provided a necessary check on swelling buds and a reminder that spring is not "just around the corner." How mild the past winter has been is well illustrated by these comparisons: January was the warmest since 1933, February the warmest since 1890, and March among the warmest since 1929.

March was a relatively dry month with slightly more than an inch of rainfall in Amherst. Soaking rains and melting snowfall on unfrozen ground in previous months, however, have left the soil well supplied with moisture. Cover crops have wintered well. Fruit buds have thus far suffered no appreciable damage, although growers are already on the alert in the knowledge that apple scab spores are maturing early. Numerous pear psylla adults have been observed in some orchards and red mite of one or more species promises to be a problem.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 724 April 1949

Meteorological Observations

FOR

APRIL
1949

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 ft. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max Miles per Hour*	Began	Ended	Water	Snow
1	55	5 P	35	7 A	45.	60	3.6	e	157	14				
2	63	2 P	33	7 A	48.	62	5.7	ne	77	8				
3	60	3 P	40	6 A	50.	56	5.8	sw	151	18				
4	48	4 P	40	6 A	44.	93	0	ne	148	18	7.30A	11:00A	0.02	
5	62	3 P	27	5 A	44.5	52	8.2	sw	83	15				
6	49	12 N	40	3 A	44.5	90	0.3	sw	213	32	2:00 A	5:30 P	0.73	
7	60	4 P	42	0 A	51.	65	4.0	n	308	28				
8	57	1 P	36	0 A	46.5	74	4.7	n	121	28	0 A	7:00 A	0.15	
9	49	2 P	37	2 A	43.	59	3.5	ne	266	32				
10	58	2 P	31	5 A	44.5	57	10.3	ne	195	20				
11	61	5 P	32	3 A	46.5	52	8.0	ne	125	20				
12	72	3 P	31	5 A	51.5	65	8.7	w	104	17				
13	73	2 P	41	6 A	57.0	68	7.9	nw	89	12	9:30P	12 P	0.10	
14	77	3 P	49	6 A	63.0	83	6.7	e	132	14	0 A	9:30A	0.48	
15	64	1 P	46	6 A	55.0	91	1.1	s	157	22	5:00P	6:30P	0.14	
16	55	11 A	44	6 A	49.5	65	2.6	n	163	25				
17	50	3 P	33	4 A	41.5	69	3.3	n	213	17				
18	51	1 P	30	6 A	40.5	85	0.6	s	127	15	2:45P	12 P	0.17	
19	55	1 P	34	5 A	44.5	92	3.1	ne	154	14	0 A	6:00A	0.54	
20	61	5 P	33	3 A	47.0	57	8.6	n	177	20				
21	76	2 P	39	3 A	57.5	57	8.0	nw	164	18				
22	78	1 P	42	6 A	60.0	77	5.0	sw	127	15	6:40P	12P	0.15	
23	72	12 N	49	6 A	60.5	66	6.4	nw	212	25	0 A	7:30P	0.19	
24	62	3 P	45	4 A	53.5	67	3.1	ne	244	20			T	
25	62	4 P	30	5 A	46.0	41	6.3	ne	132	10			T	
26	70	3 P	34	4 A	52.0	71	2.2	sw	201	22			T	
27	74	3 P	48	6 A	61.0	62	3.6	ne	107	12			T	
28	63	5 P	44	5 A	53.5	55	6.8	ne	264	22				
29	60	3 P	27	6 A	43.5	53	5.1	w	78	11			0.03	
30	79	4 P	44	6 A	61.5	58	9.1	sw	131	15				
31														

* Based on least time required to blow one mile.

S. W. Talvio, *Observer*

MONTHLY SUMMARY

APRIL 1949		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.38, 29th	30.48	30.71, 1911
Minimum	29.16, 6th	29.38	28.98, 1943
Mean semi-daily	29.920	29.99	
Range	1.22	1.11	1.52, 1930; .72, 1919
Air Temperature, in Degrees F.			
Highest	79, 30th	79.4	90, 1941
Lowest	27, 5th, 29th	22.0	8.5, 1923
Mean	50.2	45.7	52, 1921; 41, 1943
Range	52	57.4	
Highest mean daily	61, 14th		
Lowest mean daily	40, 18th		
Mean maximum	62.5	56.8	
Mean minimum	37.9	34.8	
Greatest daily range	63, 14th		
Least daily range	40.5, 18th		
Degree-days of heating load for month	441		
Degree-days cumulative for season	5361		
Precipitation, in inches			
Precipitation	2.70	3.35	6.89, 1929; .55, 1941
Snow		2.17	11, 1891; 0, 1910, 1934
Maximum precip. in 24 hrs.	0.73, 6th		
Number of days with .01 or more	11	11	18, 1909; 3, 1892
Wind, in miles			
Total movement	4820	5404	8208, 1908; 3853, 1917
Greatest daily movement	308, 7th		
Least daily movement	77, 2nd		
Mean hourly velocity	6.7	7.5	
Maximum velocity	32 6th, 9th	31.4	40, 1935, 1938, 1940, 1945
Wind, direction			
Prevailing direction	N	WNW	
North, days	5		
Northeast, days	10		
East, days	2		
Southeast, days	0		
South, days	2		
Southwest, days	6		
West, days	2		
Northwest, days	3		
Weather			
Mean relative humidity, percent	66.7	61.6	
Mean cloudiness, percent	49	51.8	75, 1901; 34, 1925, 1927
Number of clear days	1	11	23, 1941; 3, 1898, 1902
Number of fair days	17	9	18, 1915; 2, 1894, 1901
Number of cloudy days	12	10	22, 1901; 1, 1941
Number of hours bright sunshine	152.3	220	329, 1941; 103, 1901
Percent of possible hours of bright sunshine	38	54.7	
Thunder and lightning	6th and 15th	Apr. 15	Mar. 14, 1910; May 11, 1907

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1948.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 725 May 1949

Meteorological Observations

FOR

MAY
1949

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 ft. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max Miles per Hour*	Began	Ended	Water	Snow
1	80	1 P	48	6 A	64	73	7.3	w	133	15	3 P	7 P	.01	
2	72	1 P	62	5 A	67	89	0.4	sw	214	17	6 P	12 P	.13	
3	75	5 P	59	8 A	67	90	3.2	sw	141	14	0 A	6 P	1.11	
4	84	3 P	44	6 A	64	60	6.3	sw	63	8				
5	92	4 P	51	5 A	71	69	6.6	sw	97	40				
6	72	5 P	55	3 A	63	92	5.2	sw	63	12	2 A	3 A	.01	
7	78	9 A	60	5 A	69	77	8.6	e	196	20				
8	72	4 P	39	6 A	55	62	11.1	w	91	11				
9	82	3 P	47	5 A	65	61	5.5	w	113	8				
10	70	3 P	52	8 A	61	65	2.8	e	105	12	1 A	3 A	.06	
11	65	3 P	41	5 A	53	50	3.4	e	187	12				
12	58	4 P	37	5 A	47	82	3.1	se	133	10				
13	69	4 P	34	3 A	52	67	3.0	w	78	9				
14	76	11 A	46	4 A	61	74	1.1	sw	126	8	6 P	7 P	T	
15	72	2 P	46	5 A	59	64	8.4	s	105	12				
16	72	4 P	39	4 A	55	71	0.8	sw	71	7				
17	85	4 P	46	5 A	66	57	4.8	s	58	4				
18	89	5 P	53	5 A	71	68	4.8	w	122	17				
19	91	3 P	62	5 A	76	75	4.3	sw	175	28	0 A	12 P	.12	
20	64	1 A	46	7 A	55	93	0.0	ne	135	10	2 A	4 P	.95	
21	68	5 P	38	5 A	53	56	5.0	w	63	8				
22	60	11 A	46	2 A	53	75	0.0	sw	131	12	12 N	12M	.39	
23	76	12 N	53	1 A	65	75	6.8	ne	120	18	0 A	1 A	.05	
24	80	1 P	49	6 A	65	74	5.0	w	76	20	6 P	12 P	1.56	
25	64	5 P	53	6 A	59	49	10.1	ne	206	32	0 A	12 P	.12	
26	65	1 P	39	4 A	52	70	2.6	w	107	18	0 A	3 A	.16	
27	65	1 P	45	6 A	55	68	5.5	w	150	20	7 P	8 P	.03	
28	62	3 P	46	5 A	54	65	4.9	n	109	40				
29	61	1 P	43	3 A	52	64	5.3	n	140	25				
30	65	1 P	36	3 A	50	59	5.0	n	120	32				
31	73	4 P	44	4 A	58	60	10.0	ne	35	7				

* Based on least time required to blow one mile.

W. E. Downing, *Observer*

MONTHLY SUMMARY

MAY 1949		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.32, 4th	30.39	30.62, 1936
Minimum	29.64, 23rd	29.51	29.10, 1938
Mean semi-daily	29.98	29.96	
Range	0.68	0.88	
Air Temperature, in Degrees F.			
Highest	92, 5th	86.1	94.5, 1896, 1911
Lowest	34, 13th	31.2	24.0, 1900
Mean	60.0	57.1	
Range	58	54.9	
Highest mean daily	76.0, 19th		
Lowest mean daily	50.0, 30th		
Mean maximum	72.7		
Mean minimum	47.1		
Greatest daily range	41, 5th		
Least daily range	10, 2nd		
Degree-days of heating load for month	190		
Degree-days cumulative for season	5551		
Precipitation, in inches			
Precipitation	4.76	3.60	7.44, 1931; .48, 1903
Snow			
Maximum precip. in 24 hrs.	1.56, 24th		
Number of days with .01 or more	14	12	20, 1901, 1945; 5, 1903
Wind, in miles			
Total movement	3663	4504	5946, 1907; 2180, 1894
Greatest daily movement	214, 2nd		
Least daily movement	35, 31st		
Mean hourly velocity	4.9	6.1	
Maximum velocity	40, 5th, 28th	28.8	45, 1935
Wind, direction			
Prevailing direction	W	W	
North, days	3		
Northeast, days	4		
East, days	3		
Southeast, days	1		
South, days	2		
Southwest, days	9		
West, days	9		
Northwest, days	0		
Weather			
Mean relative humidity, percent	69.5	60.7	
Mean cloudiness, percent	54.7	52.1	72, 1948; 30, 1923
Number of clear days	1	11	21, 1944; 0, 1927
Number of fair days	18	11	17, 1907, 1926; 5, 1923
Number of cloudy days	12	9	20, 1927; 2, 1941
Number of hours bright sunshine	150.9	252	350, 1944; 137, 1927
Percent of possible hours of bright sunshine	33.4	55.6	
Thunder and lightning	1st, 5th, 18th, 19th, 24th 25th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1948.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 726 June 1949

Meteorological Observations
FOR
JUNE
1949

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 ft. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max Miles per Hour*	Began	Ended	Water	Snow
1	77	4 P	44	5 A	60.5	53	10.1	s	50	7				
2	81	3 P	49	3 A	65.0	59	7.9	sw	86	8				
3	82	1 P	48	4 A	65.0	54	7.1	s	152	12				
4	85	2 P	50	5 A	67.5	62	7.4	sw	145	11				
5	83	4 P	60	1 A	71.5	66	8.7	w	121	13				
6	83	4 P	48	5 A	65.5	58	7.0	n	104	12				
7	74	2 P	57	1 A	65.5	50	4.8	ne	112	28				
8	68	1 P	42	4 A	55.0	57	6.1	e	110	17				
9	74	5 P	39	5 A	56.5	51	7.3	e	111	8				
10	76	12 N	51	5 A	63.5	60	3.1	sw	176	13				
11	88	4 P	52	5 A	70.0	71	4.0	sw	127	12				
12	93	5 P	64	5 A	78.5	62	7.5	s	91	8				
13	93	1 P	64	5 A	78.5	71	5.3	sw	178	14				
14	87	4 P	68	5 A	77.5	72	5.1	sw	185	12				
15	85	3 P	63	5 A	74.0	66	8.2	sw	168	12				
16	86	3 P	67	5 A	76.5	67	5.9	sw	122	9				
17	88	2 P	69	5 A	78.5	65	2.1	s	117	10				
18	87	2 P	70	2 A	78.5	76	5.2	sw	96	10	8 A	12 N	.07	
19	92	3 P	66	5 A	79.0	68	8.1	w	85	8				
20	88	3 P	68	5 A	78.0	70	2.2	w	120	11				
21	94	3 P	70	4 A	82.0	62	4.3	w	120	12				
22	85	2 P	66	12 P	75.0	74	3.3	ne	104	25	4 A	9 A	.39	
23	83	4 P	57	5 A	70.0	45	3.6	ne	143	22				
24	93	2 P	58	5 A	76.0	54	5.7	w	102	12				
25	93	1 P	66	4 A	79.0	75	6.5	sw	136	13	5 P	7 P	.26	
26	89	4 P	72	5 A	81.0	57	4.0	nw	235	32			T	
27	91	4 P	68	4 A	79.0	61	9.6	e	113	20				
28	74	3 P	61	7 A	68.0	66	8.6	e	76	6				
29	82	1 P	59	5 A	70.0	59	8.5	sw	73	6				
30	87	3 P	59	5 A	73.0	68	2.7	sw	74	6				
31														

* Based on least time required to blow one mile.

W. E. Downing, *Observer*

MONTHLY SUMMARY

JUNE 1949		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.40, 10th	30.30	30.70, 1947
Minimum	29.58, 22nd	29.55	29.24, 1902
Mean semi-daily	29.77	29.95	
Range	0.82	0.75	
Air Temperature, in Degrees F.			
Highest	94, 21st	91.2	101,1919
Lowest	39, 9th	40.0	34, 1891
Mean	71.9	65.7	
Range	55	51.3	
Highest mean daily	82, 21st		
Lowest mean daily	55, 8th		
Mean maximum	84.8		
Mean minimum	59.2		
Greatest daily range	36, 11th		
Least daily range	13,28th		
Degree-days of heating load for month	24.5		
Degree-days cumulative for season	5575.5		
Precipitation, in inches			
Precipitation	0.72	3.75	9.68, 1922;0.76, 1908
Snow			
Maximum precip. in 24 hrs	0.39, 22nd		
Number of days with .01 or more	3	11	17, 1922, 1945; 4, 1908
Wind, in miles			
Total movement	3632	3585	4571, 1908; 1409, 1906
Greatest daily movement	235, 26th		
Least daily movement	73, 29th		
Mean hourly velocity	5.5	5.0	
Maximum velocity	32, 26th	24.6	48, 1939
Wind, direction			
Prevailing direction	sw	WSW	
North, days	1		
Northeast, days	3		
East, days	4		
Southeast, days	0		
South, days	4		
Southwest, days	12		
West, days	5		
Northwest, days	1		
Weather			
Mean relative humidity, percent	62.6	66.9	
Mean cloudiness, percent	39.7	51.1	71, 1903; 28, 1908
Number of clear days	0	10	22, 1908, 1941, 1943, 1, 1927
Number of fair days	21	12	23, 1912;3, 1941
Number of cloudy days	9	8	22, 1903; 1, 1923
Number of hours bright sunshine	179.9	257	362, 1908;102, 1903
Percent of possible hours of bright sunshine	39.3	54.0	
Thunder and lightning	20th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1948.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 727 July 1949

Meteorological Observations

FOR

JULY

1949

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max Miles per Hour*	Began	Ended	Water	Snow
1	89	2 P	55	5 A	72.0	58	4.6	sw	67	9				
2	91	4 P	59	5 A	75.0	58	6.2	w	65	8				
3	95	4 P	69	4 A	82.0	60	5.2	sw	79	11				
4	96	2 P	66	4 A	81.0	59	9.8	n	57	22	3 P	4 P	.04	
5	88	3 P	73	5 A	80.5	59	11.0	ne	130	14				
6	85	2 P	62	5 A	73.5	52	8.8	e	89	11				
7	83	5 P	59	5 A	71.0	56	13.1	e	89	10				
8	85	5 P	53	4 A	69.0	48	3.7	ne	55	6				
9	85	2 P	55	5 A	70.0	63	7.8	sw	127	13				
10	73	8 A	63	2 A	68.0	91	1.0	sw	161	14	11 A	3 P	.42	
11	85	5 P	65	6 A	75.0	68	8.1	ne	56	9				
12	87	1 P	68	1 A	77.5	75	10.7	sw	127	10				
13	83	4 P	67	6 A	75.0	88	4.3	sw	88	8	0 A	5 P	1.00	
14	88	5 P	63	3 A	75.5	77	7.0	ne	54	9				
15	80	3 P	67	7 A	73.5	81	11.3	ne	104	9	9 P	10 P	.02	
16	85	4 P	59	1 A	72	81	11.6	sw	59	6				
17	80	4 P	67	3 A	73.5	84	—	sw	46	5	1 P	2 P	.02	
18	90	5 P	70	4 A	80	72	6.6	w	136	14	2 A	7 A	.04	
19	92	3 P	72	5 A	82	62	12.1	sw	107	9				
20	95	2 P	74	5 A	84.5	73	9.4	sw	121	28	4 P	5 P	.43	
21	89	4 P	69	5 A	79	65	12.9	ne	109	11				
22	81	1 P	62	5 A	71.5	79	9.0	w	34	13	2 P	4 P	.43	
23	83	4 P	66	3 A	74.5	54	12.7	n	211	15				
24	85	5 P	54	6 A	69.5	57	10.3	n	94	13				
25	79	5 P	64	7 A	71.5	87	6.4	sw	75	6	6 A	9 A	.28	
26	88	4 P	60	6 A	74	70	12.7	sw	62	7				
27	93	3 P	65	5 A	79	73	12.9	sw	112	8				
28	96	2 P	71	6 A	83.5	68	11.8	n	93	22				
29	95	4 P	71	6 A	83	64	13.8	nw	78	8				
30	97	4 P	70	6 A	83.5	66	13.5	nw	54	25	10 P	12 P	.61	
31	81	4 P	69	6 A	75	80	12.2	ne	81	12	0 A	1 A	.12	

* Based on least time required to blow one mile.

LLOYD S. COHAN, *Observer*

MONTHLY SUMMARY

JULY 1949		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.32, 1st	30.27	30.50, 1892
Minimum	29.70, 31st	29.59	29.27, 1932
Mean semi-daily	29.982	29.96	
Range	0.62	0.68	0.97, 1892; 0.47, 1938
Air Temperature, in Degrees F.			
Highest	97, 30th	93.9	104, 1911
Lowest	53, 8th	46.4	40, 1890, 1898
Mean	76.0	70.8	74.7, 1921; 66.3, 1891
Range	44	47.7	
Highest mean daily	84.5, 20th		
Lowest mean daily	68.0, 10th		
Mean maximum	87.3		
Mean minimum	64.7		
Greatest daily range	34, 1st		
Least daily range	10, 10th		
Degree-days of heating load for month			
Degree-days cumulative for season			
Precipitation, in inches			
Precipitation	3.41	4.10	14.51, 1897,;0.70, 1929
Snow			
Maximum precip. in 24 hrs.	1.00, 13th		
Number of days with .01 or more	11	11	20, 1915; 4, 1924
Wind, in miles			
Total movement	2820	3422	5097, 1909; 1109, 1894
Greatest daily movement	211, 23rd		
Least daily movement	34, 22nd		
Mean hourly velocity	3.8	4.6	
Maximum velocity	28, 20th	28.7	44, 1936
Wind, direction			
Prevailing direction	W	SW	
North, days	4		
Northeast, days	7		
East, days	2		
Southeast, days	0		
South, days	0		
Southwest, days	13		
West, days	3		
Northwest, days	2		
Weather			
Mean relative humidity, percent	68.8	68.4	
Mean cloudiness, percent	44.2	50.9	70, 1943; 31, 1924
Number of clear days	12	10	22, 1923; 0, 1915
Number of fair days	15	14	24, 1909, 1921; 4, 1946
Number of cloudy days	4	7	18, 1889; 0, 1910
Number of hours bright sunshine	280.5	268	371, 1910; 180, 1931
Percent of possible hours of bright sunshine	60.5	58	
Thunder and lightning	13th, 15th, 20th, 28th, 30th, 31st.		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1948.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 728 August 1949

Meteorological Observations

FOR

AUGUST
1949

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 ft. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	84	5 P	59	5 A	71.5	67	14.1	sw	41	4				
2	86	3 P	58	3 A	72.0	68	13.3	sw	47	9				
3	78	4 P	69	5 A	73.5	82	12.5	w	48	4				
4	81	4 P	71	6 A	76.0	87	7.0	nw	29	12	3 A	6 P	.16	
5	86	3 P	65	3 A	75.5	80	11.9	ne	47	9	4 A	5 A	.01	
6	89	4 P	61	6 A	75.0	79	13.5	n	32	6				
7	91	2 P	61	6 A	76.0	66	13.6	nw	53	12				
8	92	3 P	61	6 A	76.5	62	13.5	nw	84	14				
9	98	3 P	67	5 A	82.5	60	10.4	sw	75	13				
10	98	4 P	65	6 A	81.5	56	14.2	nw	70	14				
11	93	1 P	66	4 A	79.5	67	9.0	sw	50	8			T	
12	80	3 P	71	7 A	75.5	90	1.0	s	45	8	5 A 7 P	9 A 10 P	.20 .29	
13	80	2 P	68	7 A	74.0	87	0.5	se	58	11	3 A 6 P	7 A 7 P	1.05 .03	
14	80	5 P	63	3 A	71.5	79	2.0	se	58	6			T	
15	83	3 P	61	3 A	72.0	69	12.0	s	41	12			T	
16	78	12 N	60	6 A	69.0	63	13.9	sw	82	8				
17	79	3 P	58	3 A	68.5	68	7.0	sw	90	9				
18	75	4 P	59	6 A	67.0	84	6.0	w	62	15	1 P	5 P	.19	
19	74	3 P	58	6 A	66.0	66	12.0	e	158	17				
20	73	5 P	45	6 A	59.0	62	10.7	n	149	20				
21	83	5 P	47	6 A	65.0	62	12.3	sw	51	7				
22	86	5 P	47	7 A	66.5	62	11.3	sw	55	7				
23	86	3 P	55	7 A	75.5	77	11.7	w	60	7				
24	87	1 P	64	6 A	75.5	70	10.9	ne	98	14				
25	80	4 P	52	5 A	66.0	56	12.7	ne	85	8				
26	94	3 P	58	6 A	76.0	65	12.0	s	126	11				
27	95	5 P	65	7 A	80.0	73	11.5	s	89	9				
28	92	3 P	70	7 A	81.0	75	8.3	sw	140	17				
29	75	12 N	64	12 P	69.5	80	2.5	sw	214	22	3 A	3 P	1.14	
30	81	5 P	55	7 A	68	77	12.2	w	73	7				
31	77	4 P	59	7 A	68	92	1.0	ne	31	12	3 P	12 P	.57	

* Based on least time required to blow one mile.

LLOYD S. COHAN, *Observer*

MONTHLY SUMMARY

AUGUST 1949		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.27, 16th	30.32	30.50, 1934
Minimum	29.58, 18th	29.61	28.87, 1930
Mean semi-daily	29.993	30.00	
Range	0.69	0.71	
Air Temperature, in Degrees F.			
Highest	98; 9th, 10th	91.6	100, 1918, 1948
Lowest	45, 20th	43.4	34, 1940
Mean	72.7	68.6	62.4, 1903
Range	53.0	48.1	
Highest mean daily	82.5, 9th		
Lowest mean daily	59, 20th		
Mean maximum	84.3		
Mean minimum	60.8		
Greatest daily range	39, 22nd		
Least daily range	9, 3rd, 12th		
Degree-days of heating load for month			
Degree-days cumulative for season			
Precipitation, in inches			
Precipitation	3.64	4.08	8.40, 1948; .31, 1894
Snow			
Maximum precip. in 24 hrs.	1.14, 29th		
Number of days with .01 or more	7	11	16, 1892, 1933; 4, 1899
Wind, in miles			
Total movement	2341	3127	4,271, 1910; 1,920, 1894
Greatest daily movement	214, 29th		
Least daily movement	29, 4th		
Mean hourly velocity	3.1	4.2	
Maximum velocity	22, 29th	22.7	40, 1941
Wind, direction			
Prevailing direction	SW	SW	
North, days	2		
Northeast, days	4		
East, days	1		
Southeast, days	2		
South, days	4		
Southwest, days	10		
West, days	4		
Northwest, days	4		
Weather			
Mean relative humidity, percent	72.0	70.2	
Mean cloudiness, percent	45.3	49.7	67, 1901, 1946; 27, 1923
Number of clear days	21	9	23, 1941; 0, 1915, 1929
Number of fair days	5	13	25, 1912; 3, 1939
Number of cloudy days	5	9	18, 1901, 1928; 2, 1910, 1923
Number of hours bright sunshine	304.5	237	332, 1941; 152, 1915, 1929
Percent of possible hours of bright sunshine	70.7	55.2	
Thunder and lightning	31st.		
		Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1948.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 729 September 1949

Meteorological Observations

FOR

SEPTEMBER

1949

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 ft. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max Miles per Hour*	Began	Ended	Water	Snow
1	81	3 P	66	5 A	73.5	67	10	sw	172	18	12 P	4 A	.44	
2	74	4 P	44	7 A	59	69	12.3	w	65	4				
3	79	2 P	43	7 A	61	73	8.7	s	32	6				
4	82	3 P	47	6 A	64.5	80	7.9	sw	62	5				
5	86	1 P	62	1 A	74	80	6.3	sw	152	13				
6	73	1 P	63	6 A	68	64	12.2	ne	187	17				
7	63	3 P	44	6 A	53.5	74	5.9	n	45	7				
8	64	5 P	49	2 A	56.5	91	3.5	ne	26	6	8 A	7 P	.16	
9	63	2 P	49	6 A	56	80	4.8	n	114	18	6 A	4 P	.03	
10	72	4 P	43	7 A	57.5	72	11.7	ne	98	12				
11	75	4 P	42	6 A	58.5	69	11.0	sw	66	10				
12	74	3 P	54	6 A	64	69	9.6	s	115	13				
13	69	2 P	55	0 A	62	84	0.6	s	115	14				
14	84	3 P	67	0 A	75.5	84	8.7	w	87	9	0 A	4 A	.46	
15	78	3 P	61	8 A	69.5	81	6.6	ne	71	12	3 A	8 A	.72	
16	73	3 P	51	5 A	62	73	9.8	n	76	9				
17	77	4 P	49	5 A	63	78	10.5	sw	59	13				
18	78	12 N	53	6 A	65.5	82	7.1	s	89	11	1 P	12 P	.50	
19	79	1 P	68	6 A	73.5	73	8.7	n	140	17	0 A	9 P	.12	
20	67	3 P	51	6 A	59	66	9.4	n	134	20				
21	70	3 P	44	6 A	57	71	11.0	sw	50	6				
22	65	3 P	56	6 A	60.5	74	0	s	71	4	0 A	12 P	.28	
23	67	3 P	57	6 A	62	85	4.1	nw	73	15	0 A	6 P	.41	
24	64	2 P	48	3 A	56	71	9.7	ne	104	22				
25	62	3 P	40	6 A	51	72	11.4	ne	83	11				
26	67	4 P	35	7 A	51	74	10.4	nw	29	6				
27	69	1 P	42	7 A	55.5	76	5.8	sw	78	9				
28	65	12 N	59	6 A	62	91	0.4	e	55	5	11 A	5 P	.08	
29	65	1 P	57	4 A	61	90	3.8	nw	14	15	2 A	12 P	.22	
30	66	4 P	53	12 P	59.5	72	8.6	ne	181	18	0 A	4 A	.13	
31														

* Based on least time required to blow one mile.

LLOYD S. COHAN., *Observer*

MONTHLY SUMMARY

SEPTEMBER 1949		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.57,12th	30.45	30.65, 1924
Minimum	29.42, 23rd	29.57	28.41, 1938
Mean semi-daily	30.045	30.00	
Range	1.15	.88	1.99, 1938; .57, 1910
Air Temperature, in Degrees F.			
Highest	86, 5th	87.7	97, 1895, 1929
Lowest	35, 26th	33.2	24.5, 1914
Mean	61.7	61.7	
Range	51	54.5	
Highest mean daily	75.5 14th		
Lowest mean daily	51, 25th, 26th		
Mean maximum	71.7		
Mean minimum	51.7		
Greatest daily range	36, 3rd		
Least daily range	6, 28th		
Degree-days of heating load for month	143		
Degree-days cumulative for season	143		
Precipitation, in inches			
Precipitation	3.55	4.24	14.55, 1938; .52, 1914
Snow			
Maximum precip. in 24 hrs.	.72 ,15th		
Number of days with .01 or more	12	10	16, 1933; 3, 1903
Wind, in miles			
Total movement	2643	3271	4,686, 1896; 1,414, 1894
Greatest daily movement	187, 6th		
Least daily movement	14, 29th		
Mean hourly velocity	3.7	4.5	
Maximum velocity	22, 24th	25.9	80, 1938
Wind, direction			
Prevailing direction	WNW	WSW	
North, days	5		
Northeast, days	7		
East, days	1		
Southeast, days	0		
South, days	5		
Southwest, days	7		
West, days	2		
Northwest, days	3		
Weather			
Mean relative humidity, percent	76.2	73.6	
Mean cloudiness, percent	50.7	49.9	70, 1934: 23, 1947
Number of clear days	15	10	19, 1932: 2, 1907, 1928
Number of fair days	11	10	19, 1908; 3, 1889
Number of cloudy days	4	10	20, 1934; 3, 1941, 1948
Number of hours bright sunshine	230.5	201	255, 1916; 106, 1934
Percent of possible hours of bright sunshine	61.5	54.9	
Thunder and lightning	14th, 18th, 19th, 23rd		
First Frost	26th	Sept. 21	Oct. 13, 1909; Aug. 22, 1894-95

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1948.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 730 October 1949

Meteorological Observations

FOR

OCTOBER

1949

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 ft. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	66	3 P	44	7 A	55.0	66	11.5	ne	55	9				
2	64	4 P	36	7 A	50.0	77	11.1	n	48	6				
4	68	2 P	40	7 A	54.0	79	8.0	s	85	10				
4	74	4 P	50	6 A	62.0	81	7.6	sw	105	9				
5	75	3 P	60	1 A	67.5	79	6.6	s	146	18	6 A	7 A	.17	
6	68	4 P	40	7 A	54.0	72	10.2	n	44	5				
7	66	4 P	44	2 A	55.0	86	0.6	sw	18	5	9 P	12 P	.15	
8	72	1 P	50	1 A	61.0	88	2.8	s	24	3	0 A	1 A	.13	
9	83	4 P	64	8 A	73.5	84	6.5	se	37	7				
10	86	4 P	62	7 A	74.0	77	8.9	w	48	4				
11	88	3 P	59	5 A	73.5	82	8.0	se	87	11				
12	84	1 P	65	4 A	74.5	64	7.8	se	206	20	11 P	12 P	.04	
13	70	3 P	52	6 A	61.0	65	10.2	nw	88	9				
14	72	3 P	39	6 A	55.5	74	9.7	se	35	7				
15	60	4 P	52	6 A	56.0	92	0	ne	71	9	2 A	2 P	.27	
16	63	3 P	38	7 A	50.5	54	10.1	ne	117	8				
17	69	2 P	34	5 A	51.5	60	8.2	se	69	11				
18	66	3 P	42	5 A	54.0	63	3.1	e	135	17				
19	66	2 P	50	7 A	58.0	65	3.1	e	115	15				
20	72	3 P	42	7 A	57.0	65	8.7	n	61	10				
21	75	4 P	37	5 A	56.0	63	8.9	s	21	6				
22	73	3 P	55	6 A	64.0	68	1.3	se	138	17	4 P	5 P	.01	
23	68	2 P	48	7 A	58.0	63	9.7	sw	177	18				
24	58	12 N	51	7 A	54.5	61	3.3	nw	117	14				
25	57	2 P	28	6 A	42.5	72	7.3	sw	43	5	9 P	12 P	.07	
26	63	2 P	45	2 A	54.0	75	7.5	w	116	28	0 A	7 A	.98	
27	55	4 P	36	7 A	45.5	63	9.2	nw	127	10				
28	63	2 P	31	7 A	47.0	70	9.4	se	91	9				
29	68	3 P	49	8 A	58.5	78	5.6	n	37	1				
30	61	8 P	46	0 A	53.5	98	0	sw	20	7	3 P	4 P	.02	
31	64	3 P	48	12 P	56.0	85	2.7	n	90	24	0 A	10 A	.74	

* Based on least time required to blow one mile.

Lloyd S. Cohan., *Observer*

MONTHLY SUMMARY

OCTOBER 1949		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
maximum	30.64, 2nd	30.53	30.68, 1929
Minimum	29.48, 31st	29.42	29.00, 1926
Mean semi-daily	30.170	30.06	
Range	1.16	1.11	1.47, 1926; .76, 1899
Air Temperature, in Degrees F.			
Highest	88, 11th	79.4	90.5, 1908
Lowest	28, 25th	23.4	17, 1936
Mean	57.6	50.5	57.4, 1947; 43.2, 1890
Range	60	56.0	
Highest mean daily	74.5, 12th		
Lowest mean daily	42.5, 25th		
Mean maximum	68.93		
Mean minimum	46.35		
Greatest daily range	38, 21st		
Least daily range	7, 24th		
Degree-days of heating load for month	266		
Degree-days cumulative for season	409		
Precipitation, in inches			
Precipitation	2.58	3.29	8.81, 1911; .01, 1924
Snow			
Maximum precip. in 24 hrs.	0.98, 26th		
Number of days with .01 or more	10	9	15, 1913; 1, 1897, 1924
Wind, in miles			
Total movement	2571	4074	5,467, 1910; 2,540, 1894
Greatest daily movement	206, 12th		
Least daily movement	18, 7th		
Mean hourly velocity	3.45	5.4	
Maximum velocity	28, 26th	29.5	42, 1937
Wind, direction			
Prevailing direction	SW	W	
North, days	5		
Northeast, days	3		
East, days	2		
Southeast, days	7		
South, days	4		
Southwest, days	5		
West, days	2		
Northwest, days	3		
Weather			
Mean relative humidity, percent	73.2	69.0	
Mean cloudiness, percent	41.5	48	67, 1932; 18, 1924
Number of clear days	15	10	21, 1938; 1, 1911
Number of fair days	8	10	17, 1924; 3, 1938
Number of cloudy days	8	11	19, 1896; 3, 1924
Number of hours bright sunshine	207.6	175.0	232, 1923, 1938; 91, 1913
Percent of possible hours of bright sunshine	60.5	51.3	
Thunder and lightning	—		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1947.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 731 November 1949

Meteorological Observations

FOR

NOVEMBER

1949

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 ft. Time used, E. S T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	59	2 P	39	8 A	49	60	7.3	w	166	11				
2	59	3 P	39	6 A	49	72	6.4	s	131	13	2 A	3 A	.01	
3	62	2 P	33	5 A	47.5	83	3.7	ne	49	8				
4	52	1 A	43	8 P	47.5	80	4.5	w	164	22	5 A	6 A	.01	
5	45	12 N	33	12 P	39	67	5.4	nw	115	13	1 P	2 P	.01	
6	42	3 P	31	2 A	36.5	74	5.1	nw	79	10				
7	47	9 P	32	0 A	39.5	78	2.0	se	38	8				
8	68	2 P	40	6 A	54	72	8.9	w	145	17				
9	56	2 P	43	8 A	49.5	69	7.5	nw	115	7				
10	64	4 P	31	1 A	47.5	76	6.9	se	77	13				
11	67	3 P	52	8 A	59.5	85	3.4	se	119	14	6 A	8 A	.03	
12	58	2 P	40	8 A	49	62	0	ne	87	11				
13	48	7 P	39	8 A	43.5	85	0	s	72	11	10 P	12 P	.31	
14	63	1 P	40	11 P	51.5	77	4.6	nw	97	18	0 A	2 A	.31	
15	57	2 P	30	8 A	43.5	81	8.5	w	30	8				
16	54	12 N	32	1 A	38	75	8.3	nw	31	11				
17	46	1 P	28	6 A	37	76	5.2	n	44	15				
18	42	3 P	28	7 A	35	84	4.9	ne	35	9				
19	46	1 P	26	0 A	36	72	4.7	s	96	12				
20	48	2 P	38	2 A	43	76	2.2	s	164	18	1 A	2 A	.04	
21	43	11 A	28	12 P	35.5	73	6.7	w	104	13				
22	31	1 P	18	12 P	24.5	68	7.8	nw	249	25				
23	44	1 P	18	0 A	31	56	5.1	se	210	25				
24	38	1 P	28	7 A	33	61	4.6	sw	143	9				
25	44	2 P	35	2 A	39.5	95	0	nw	49	20	2 A	9 A	.25	
26	37	0 A	25	8 A	31	62	8.4	ne	361	32	8 A	12 P	.23	2.3
27	22	12 P	12	4 P	17	85	0	ne	101	9				
28	32	2 P	22	0 A	27	91	0	ne	134	15	6 P	7 P	.01	
29	39	8 A	32	0 A	35.5	100	0	n	48	11	5 A	5 P	.58	
30	49	1 P	29	7 A	39	83	6	w	60	8				
31														

* Based on least time required to blow one mile.

Lloyd S. Cohan, *Observer*

MONTHLY SUMMARY

NOVEMBER, 1949		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.299, 12th, 13th	30.59	30.87, 1932
Minimum	29,376, 25th	29.30	28.73, 1904
Mean semi-daily	29.877	30.05	
Range	0.923	1.29	1.84, 1904; 89, 1943
Air Temperature, in Degrees F.			
Highest	68, 8th	66.0	75, 1924, 1938
Lowest	12, 27th	12.9	4, 1938
Mean	40	38.9	44.1, 1931; 33.6, 1901
Range	56	53.0	
Highest mean daily	59.5, 11th		
Lowest mean daily	17, 27th		
Mean maximum	48.7		
Mean minimum	32.1		
Greatest daily range	33, 10th		
Least daily range	7, 29th		
Degree-days of heating load for month	742		
Degree-days cumulative for season	1151		
Precipitation, in inches			
Precipitation	1.79	3.41	8.64, 1927;63, 1917
Snow	2.3	2.34	13.50, 1938
Maximum precip. in 24 hrs.	0.58., 29th		
Number of days with .01 or more	11	9	22, 1921; 2, 1904
Wind, in miles			
Total movement	3133	4531	5,978, 1096, ;2,589, 1889
Greatest daily movement	361, 26th		
Least daily movement	30, 15th		
Mean hourly velocity	4.6	6.3	
Maximum velocity	32, 26th	30.3	48, 1948
Wind, direction			
Prevailing direction	NW	WNW	
North, days	3		
Northeast, days	6		
East, days	0		
Southeast, days	4		
South, days	4		
Southwest, days	1		
West, days	5		
Northwest, days	7		
Weather			
Mean relative humidity, percent	75.9	70.6	
Mean cloudiness, percent	62.4	55.1	78, 1947; 34, 1917
Number of clear days	7	6	15, 1903; 0, 1948
Number of fair days	14	9	16, 1912; 4, 1889, 1930, '32, '35
Number of cloudy days	9	15	24, 1927; 9, 1905, 1917
Number of hours bright sunshine	138.1	121	821, 1903; 44, 1948
Percent of possible hours of bright sunshine	47.0	41.3	
Thunder and lightning			
First Frost		Nov. 6	Oct. 10, 1925; Dec. 13, 1941

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1948.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 732 December 1949

Meteorological Observations

FOR

DECEMBER

1949

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	43	12 N	26	6 A	34.5	75	5.4	N	90	17				
2	35	12 N	27	3 A	31.0	93	0	NE	45	8	10 A	12 P	.22	3.5
3	33	2 P	18	12 P	25.5	70	7.9	N	222	17	0 A	3 A	.08	1.5
4	30	2 P	4	6 A	17.0	83	6.7	NW	55	5.5	6 P	12 P	.14	1.7
5	31	3 P	23	9 P	27.0	91	0.2	W	51	11	0 A	2 A	.03	.3
6	25	10 A	10	12 P	17.5	61	7.4	W	217	66				
7	21	4 P	9	0 A	15.0	89	0	NW	44	32	6 A	12 N	.17	.15
8	29	1 P	16	6 A	22.5	60	7.6	NW	204	18				
9	28	2 P	8	8 A	18.0	74	6.4	W	108	15				
10	21	3 P	- 7	6 A	7.0	78	7.4	NW	21	1				
11	34	12 P	12	0 A	23.0	95	0	W	13	1	12 N	9 P	.07	
12	49	7 P	34	1 A	41.5	100	0	SW	89	12	7 A	12 P	.68	
13	50	6 A	33	12 P	41.5	81	0	N	136	15	0 A	10 A	.38	
14	38	2 P	23	12 P	30.5	71	4.6	W	86	15				
15	30	2 P	15	8 A	22.5	72	6.7	NE	63	9				
16	33	3 P	10	8 A	21.5	86	7.3	NW	20	11				
17	40	3 P	15	8 A	27.5	73	7	SE	70	11				
18	48	6 P	33	0 A	40.5	88	0	SE	168	8	5 P	6 P	.01	
19	51	3 P	39	10 P	45.0	88	1.5	NW	109	11				
20	49	3 P	31	8 A	40.0	80	3	SE	58	13				
21	51	2 P	38	4 A	44.5	84	0	SE	198	13				
22	61	3 P	46	1 A	53.5	87	4	SE	212	15				
23	57	10 A	34	12 P	45.5	70	0	NW	198	13	12 N	6 P	.18	
24	32	2 P	24	7 A	28.0	64	4.5	NW	123	2				
25	38	2 P	16	7 A	27.0	72	7.5	SW	53	7				
26	37	7 P	27	7 A	32.0	95	0	SW	20	13	12 N	12 P	.12	
27	58	8 P	48	12 P	53.0	100	0	SW	131	25	0 A 11 P	1 P 12 P	.29 .01	
28	40	1 P	30	12 P	35.0	59	5.5	N	253	25	4 A	6 A	.06	
29	37	9 A	18	12 P	27.5	62	1	N	302	25				
30	29	1 P	14	7 A	16.5	48	8	NE	282	15				
31	37	3 P	14	7 A	18.5	58	8	N	110	7				

* Based on least time required to blow one mile.

LLOYD S. COHAN, *Observer*

MONTHLY SUMMARY

DECEMBER, 1949		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	31.104, 25th	30.66	30.96, 1889
Minimum	29,707, 1st	29.27	28.85, 1915
Mean semi-daily	30.259	30.06	
Range	1.397	1.38	1.78, 1895; 1.01, 1892
Air Temperature, in Degrees F.			
Highest	61, 22nd	54.3	65.5, 1908
Lowest	—7, 10th	1.09	—22.5, 1917
Mean	29.9	27.5	36.9, 1891; 17.1, 1917
Range	68	56.2	
Highest mean daily	55, 27th		
Lowest mean daily	5, 10th		
Mean maximum	38.5		
Mean minimum	22.2		
Greatest daily range	28, 10th		
Least daily range	8, 5th, 24th		
Degree-days of heating load for month	1085.5		
Degree-days cumulative for season	2236.6		
Precipitation, in inches			
Precipitation	2.44	3.39	7.77, 1901; .58, 1943
Snow	8.5	8.50	26.50, '02, T, 1891, 1943
Maximum precip. in 24 hrs.	0.68, 12th		
Number of days with .01 or more	13	10	17, 1902: 4, 1892, 1943
Wind, in miles			
Total movement	3751	4710	6,694, 1925; 3,239,1918
Greatest daily movement	302, 29th		
Least daily movement	13, 11th		
Mean hourly velocity	5.0	6.3	
Maximum velocity	66, 6th	31.4	48, 1938, 1943, 1944, 1948
Wind, direction			
Prevailing direction	NW	WNW	
North, days	8		
Northeast, days	3		
East, days	0		
Southeast, days	5		
South, days	0		
Southwest, days	4		
West, days	3		
Northwest, days	8		
Weather			
Mean relative humidity, percent	77.6	69.4	
Mean cloudiness. percent	48.8	54.9	71, 1929; 39, 1919
Number of clear days	12	8	15, 1890; 0, 1948
Number of fair days	6	9	16, '09; 4, '89, '30, '31, '36, '38
Number of cloudy days	13	14	25, 1948; 7, '09, '23
Number of hours bright sunshine	117.6	128	172, 1896; 27, 1948
Percent of possible hours of bright sunshine	41.6	45.2	
Thunder and lightning			
First Frost		Nov. 6	

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1948.

ANNUAL SUMMARY

ANNUAL	Normal	Extremes
Barometer, in inches (Readings reduced to sea level)		
Maximum 31.104, Dec. 25th	30.81	31.05, 1920, 1943
Minimum 29.160, Apr. 6th	28.95	28.41, 1938
Mean semi-daily 30.022	30.01	
Range 1.944	1.85	2.47, 1938; 1.38, 1933
Air Temperature, in degrees F.		
Highest 98, Aug. 9th, 10th	95.7	104, 1911
Lowest —7, Dec. 10th	—12.2	—26, 1904
Mean 56.9	47.4	49.8, 1921; 44, 1904
Range 105	107.8	
Highest mean daily 82, July 29th		
Lowest mean daily 5, Dec. 10th		
Mean maximum 62.14	57.8	
Mean minimum 41.39	36.5	
Greatest daily range 41, May 5th		
Least daily range 3. Jan. 11th & Feb. 25th		
Precipitation, in inches		
Precipitation 33.61	43.70	59.00, 1938; 30.68, 1908
Snow 49.05	47.78	89.00, 1893; 24.50, 1919
Maximum precip. in 24 hrs. 1.56, May 24th		
Number of days with .01 or more 115	124	146, 1945; 96, 1924
Wind, in miles		
Total movement 42,249	52,223	63,571, 1908; 36,257, 1894
Greatest daily movement 408, Mar. 1st		
Least daily movement 10, Jan. 5th		
Mean hourly velocity 4.86	5.8	
Maximum velocity 66, Dec. 6th	39.5	80, 1938
Wind, direction		
Prevailing direction WNW	W	
North, days 57		
Northeast, days 56		
East, days 16		
Southeast, days 27		
South, days 36		
Southwest, days 71		
West, days 48		
Northwest, days 54		
Weather		
Mean relative humidity, percent 71	67.6	
Mean cloudiness, percent 50.2	51.7	60, '98, '01, '02; 41, '08, '24
Number of clear days 111	116	217, 1941; 59, 1927
Number of fair days 138	123	182, 1912; 64, 1936
Number of cloudy days 116	126	179, '01, '02; 71, 1910, 1941
Number of hours bright sunshine 2154.9	2,353	3038, 1941; 1864, 1902
Percent of possible hours of bright sunshine 47.8	52.8	
Last snow Mar. 18th	April 15	Mar. 14 '10; May 11, '07, '45
First snow Nov. 26th	Nov. 6	Oct. 10, '25; Dec. 13, '41
Last frost Apr. 29th	May 14	Apr. 14, '43; June 8, '32
First frost Sept. 26th	Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 733 December 1950

Meteorological Observations

FOR

JANUARY

1950

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 ft. Time used, E. S T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	35	3 P	25	3 A	30	80	0	NW	32	2				
2	35	8 P	25	0 A	30	90	0	W	9	2	4 P	5 P	.01	
3	51	8 P	33	3 A	42	99	0	S	70	13	6 A	10 A	.20	
4	62	3 P	50	7 A	56	88	1.7	S	189	13				
5	58	0 A	42	12 P	50	79	0	N	113	18	11 A	4 P	.07	
6	44	0 A	37	12 P	41.5	100	0	N	60	10	5 A	12 P	.97	
7	38	0 A	24	12 P	31	78	5.6	N	256	28	0 A	5 A	.27	
8	25	0 A	5	10 A	15	55	8.2	N	339	28				
9	32	5 P	6	2 A	19	72	0.5	S	89	9				
10	33	8 P	23	7 A	28	94	0	N	36	5	9 A	10 P	1.09	
11	41	6 A	25	12 P	33	56	2.2	N	333	40				
12	32	4 P	15	8 A	23.5	63	7.0	NE	91	13				
13	34	12 P	23	0 A	28.5	99	0	N	28	5	7 A	9 P	.29	
14	59	1 P	34	0 A	46.5	73	3.7	W	320	40	5 A	6 A	.01	
15	39	2 P	27	8 A	33	73	4.1	NW	189	9	7 P	8 P	.02	
16	45	11 A	31	12 P	38	61	0	W	223	25	1 A	8 A	.08	
17	36	1 P	27	8 A	31.5	56	4.1	W	160	13				
18	48	3 P	29	4 A	38.5	83	2.6	SE	201	25	2 A	8 A	.18	1.1
19	26	0 A	16	7 A	21	60	5.7	W	147	7				
20	25	3 P	13	8 A	19	68	8.5	W	120	22				
21	18	1 P	13	8 A	15.5	86	0.2	S	49	6	3 A	6 P	.08	1.5
22	32	8 P	17	0 A	24.5	96	0.3	N	15	2	1 A	7 P	.10	1.1
23	39	4 P	31	2 A	35	99	0	W	22	4				
24	37	9 A	29	12 P	33	98	0	NE	74	10	10 A	12 P	.41	
25	34	3 P	28	6 A	31	100	0	NE	108	5	0 A	9 A	.03	
26	65	1 P	33	0 A	49	93	4.3	SW	123	25				
27	45	0 A	22	12 P	33.5	68	3.8	N	271	25				
28	32	2 P	14	8 A	23	66	6.8	NE	86	5				
29	52	3 P	29	1 A	40.5	98	2.2	SE	99	12	1 A	7 P	.10	
30	46	0 A	27	12 P	36.5	50	3.1	NW	224	22				
31	27	0 A	20	8 A	23.5	95	0	NW	160	17	4 A	11 A	.42	3.4

* Based on least time required to blow one mile.

LLOYD S. COHAN, *Observer*

MONTHLY SUMMARY

JANUARY, 1950		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.696, 12th	30.70	31.00, 1927
Minimum	29.581, 14th	29.20	28.55, 1913
Mean semi-daily	30.252	30.07	
Range	1.115	1.50	2.18, 1913; 0.97, 1896
Air Temperature, in Degrees F.			
Highest	65, 26th	51.1	66.0, 1932
Lowest	5, 8th	—7.1	—26.0, 1904
Mean	32.3	24.2	34.2, 1913; 13.9, 1918
Range	60	58.2	
Highest mean daily	53, 4th		
Lowest mean daily	8, 8th		
Mean maximum	39.5		
Mean minimum	24.8		
Greatest daily range	32, 26th		
Least daily range	5, 21st		
Degree-days of heating load for month	1015		
Degree-days cumulative for season	3251		
Precipitation, in inches			
Precipitation	4.33	3.61	7.15, 1898; 1.07, 1896
Snow	7.1	13.32	33, 1898, 1923; 1.50, '08
Maximum precip. in 24 hrs.	1.09, 10th		
Number of days with .01 or more	17	11	15, '93, '20; 4, 1901
Wind, in miles			
Total movement	4036	5055	7770, 1908; 2896, 1895
Greatest daily movement	339, 8th		
Least daily movement	9, 2nd		
Mean hourly velocity	5.4	6.8	
Maximum velocity	40, 11th, 14th	32.7	47, 1938
Wind, direction			
Prevailing direction	NW	WNW	
North, days	9		
Northeast, days	4		
East, days	0		
Southeast, days	2		
South, days	4		
Southwest, days	1		
West, days	7		
Northwest, days	4		
Weather			
Mean relative humidity, percent	79.9	70.1	
Mean cloudiness, percent	75.1	55	78, 1932; 37, 1908
Number of clear days	3	9	20, 1944; 1, 1949
Number of fair days	9	9	18, 1890; 1926; 3, 1916, 1944
Number of cloudy days	19	13	22, 1923, '31, '49; 4, 1920, '39
Number of hours bright sunshine	74.6	137	214, 1920; 50.4, 1949
Percent of possible hours of bright sunshine	25.4	46.7	
Thunder and lightning			
First Frost			

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1949.

REMARKS

While the month produced no record highs for mildness it did couple a low heating load to the season's already low figure which was appreciated by the householder. At the mean midpoint of the heating season which fell on the 22nd, less than 3000 degree days had accumulated. Late season severe weather which could follow can still bring the seasonal figure up, but will likely run less than average for the season.

Precipitation at an accumulated 4.33 inches of water is somewhat above the mean of 3.61 inches for the month and will aid in replacing the ground water deficit which has been accumulating over the past 18 months of below mean rainfall.

W. H. Thies, Extension Professor of Horticulture, contributes the following report "There has been little visible swelling of peach buds in the University orchard thus far and the number of live buds at present gives promise of a good crop. There is reason to believe, however, that sub-zero temperatures after this date would cause more damage than in early winter. More than 800 hours of temperatures below 45° are required to bring peach trees out of their winter rest period, and thus set the stage for a response to warmer weather. Around 40° they go through their rest period most rapidly. Above 45°, and also at temperatures much below freezing, the process is slowed up. Because of this situation, peach buds in Massachusetts have not responded as much to the mild January weather as one might suppose.

A few comments concerning other fruits may also be of interest. Apple and pear buds are still apparently in a strictly dormant stage. It is doubtful if any bud injury has occurred. An occasional case of bark splitting on the trunk may be traced to late stimulation and retard maturity. All raspberry varieties are probably out of their winter rest period, and there has been some evidence of tip-killing on canes of tender varieties, such as Washington. Strawberry plants, if protected by a layer of suitable mulch material, and in good condition. The absence of a snow cover during most of the winter season, has left unmulched plantings exposed to rather wide extremes of temperature. This condition may be reflected in damaged plants and a smaller crop of berries next June."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 734 February 1950

Meteorological Observations

FOR

FEBRUARY

1950

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 ft. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	31	2 P	20	0 A	25.5	90	3.6	NW	33	5				
2	35	2 P	27	2 A	31	100	0	NW	37	5	1 A	8 A	.21	1.7
3	34	1 A	22	8 P	30	51	7.3	W	306	32				
4	35	1 P	18	8 A	26.5	59	4.5	N	196	28				
5	32	4 P	15	8 A	23.5	44	7.1	N	143	11				
6	34	2 P	15	0 A	24.5	77	0	NE	21	9	11 A	6 P	.16	1.1
7	33	2 P	26	3 A	29.5	57	7.5	NE	160	25				
8	26	4 P	- 4	8 A	11	60	7.8	N	127	13				
9	46	12 N	20	0 A	33	94	0	SW	147	20	7 A	4 P	.53	1.7
10	38	4 P	29	7 A	33.5	73	5.6	NE	142	13				
11	39	4 P	32	5 A	35.5	93	0.6	NW	34	6	1 A 8 A	2 A 9 A	.02	0.1 T
12	43	2 P	26	8 A	34.5	75	6.4	N	48	10				
13	33	4 P	25	4 A	29	80	2.3	N	79	10	7 P	12 P	1.3	1.4
14	29	12 P	24	8 P	26.5	92	0	N	112	15	0 A	12 P	.90	9.1
15	33	4 P	26	0 A	29.5	100	0	N	175	18	0 A	12 P	.83	1.0
16	39	3 P	28	8 A	33.5	89	4.3	N	75	9	6 A	11 A	.05	0.7
17	42	2 P	28	5 A	35	87	6.1	N	34	11				
18	40	3 P	31	8 A	35.5	67	4.2	N	82	9				
19	41	2 P	26	0 A	33.5	85	2.5	NW	147	22	7 A	8 A	.04	0.3
20	21	0 A	- 4	12 P	12.5	58	9.3	E	420	28				
21	20	2 P	- 8	6 A	6	49	8.7	E	133	9	10 P	12 P	.09	0.6
22	16	2 P	8	8 A	12	87	1.8	E	110	14	0 A	12 P	.65	5.2
23	29	3 P	11	0 A	20	89	0.9	E	231	28	0 A	9 A	.19	0.3
24	41	5 P	19	7 A	30	71	4.7	NW	206	28				
25	24	1 P	10	12 P	17	58	8.6	NW	373	32				
26	25	2 P	- 2	7 A	11.5	67	7.7	N	128	22				
27	17	4 P	- 4	6 A	6.5	60	9.3	N	263	25				
28	30	1 P	- 5	7 A	12.5	68	6.6	SW	131	14	5 P	12 P	.15	0.6

* Based on least time required to blow one mile.

Lloyd S. Cohan, *Observer*

MONTHLY SUMMARY

FEBRUARY, 1950		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.77, 8th	30.63	31.05, 1920
Minimum	29.45, 24th	29.24	28.56, 1895
Mean semi-daily	30.13	30.04	
Range	1.32	1.38	1.89, '00, '08; .88, '13, '31
Air Temperature, in Degrees F.			
Highest	46, 9th	50.5	65.0, 1930
Lowest	—8, 21st	—7.4	—23, 1943
Mean	24.5	23.7	32.6, 1890; 11.6, 1934
Range	54	58	
Highest mean daily	34.5, 9th		
Lowest mean daily	0, 20th		
Mean maximum	32.4	32.8	
Mean minimum	16.4	14.5	
Greatest daily range	35, 28th		
Least daily range	5, 14th		
Degree-days of heating load for month	1132		
Degree-days cumulative for season	4383		
Precipitation, in inches			
Precipitation	3.99	3.19	8.12, 1900; 0.62, 1901
Snow	23.8	13.99	48.75, 1893; 0.50, 1937
Maximum precip. in 24 hrs.	94, 14th		
Number of days with .01 or more	13	10	15, '93, 1920; 4, 1901
Wind, in miles			
Total movement	4093	4776	6445, 1896; 3402, 1949
Greatest daily movement	420, 20th		
Least daily movement	21,6th		
Mean hourly velocity	6.1	7.1	
Maximum velocity	32, 3rd, 25th	31.7	50, 1946
Wind, direction			
Prevailing direction	N	WNW	
North, days	12		
Northeast, days	3		
East, days	3		
Southeast, days	1		
South, days	0		
Southwest, days	2		
West, days	1		
Northwest, days	6		
Weather			
Mean relative humidity, percent	74.4	66.6	
Mean cloudiness, percent	65	50.9	66, '90, '27; 31, 1905
Number of clear days	8	10	19, 1941; 2, 1927
Number of fair days	10	8	16, 1920; 2, 1936
Number of cloudy days	10	10	16, 1894; 2, 1920
Number of hours bright sunshine	127.4	158	221, 1924; 110, '27, '38
Percent of possible hours of bright sunshine	43.2	53.4	
Thunder and lightning			
First Frost			

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1949.

REMARKS

With the exception of the 8th the mild weather of the previous month continued until the 20th when a precipitous drop in temperature occurred which carried through to the end of the month. This greatest daily wind movement during the month combined with this temperature change provided the most uncomfortable winter conditions to that point of the season. The low of —8 degrees on the morning of the 21st however only approximated the —7.1 mean lowest temperature for the month, and the mildness earlier provided a mean of 24.5 degrees against an average mean of 23.7. The heating load continued very moderate at 1132 degree-days for the month to accumulate 4383 degree days for the season. The lengthening days with fair to clear cloud conditions helped offset the cold air masses and heavy nocturnal radiation on clear nights.

The precipitation of 23.8 inches of snow which yielded 3.99 inches of water provided a margin above the mean of 3.19 inches for the month which will eventually be available to the ground water supply.

William G. Colby, Professor of Agronomy, contributes the following report: "The relatively mild temperatures during the first 19 days of the month, coupled with somewhat more than average rainfall, helped tremendously in replenishing badly depleted soil moisture reserves. The last 10 days of the month were colder than normal but the ground was covered with a heavy blanket of snow, therefore preventing deep penetration of frosts into the soil."

"This means that soil moisture reserves will be still further replenished when the present snow cover melts. Field crop conditions to this point in the season continue favorable. A similar condition prevailed last year. Our summer drought would have been more serious had it not been for the absorption by the soil water produced from a comparatively heavy, late winter fall of snow."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 735 March 1950

Meteorological Observations

FOR

MARCH

1950

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 ft. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	37	2 P	19	12 P	28	76	1.6	W	217	25	0 A	1 A		T
											11 A	1 P		
2	20	12 N	7	12 P	16	56	8.2	NW	305	32				
3	15	1 P	—2	6 A	6.5	50	9.3	NW	331	25				
4	26	4 P	—9	6 A	8.5	55	9.7	NW	42	8				
5	44	4 P	11	0 A	27.5	68	6.0	S	193	18				
6	42	2 A	11	12 P	26.5	52	10.1	NW	338	32				
7	37	4 P	4	7 A	20.5	53	8.0	SW	81	8				
8	57	12 P	27	0 A	42	91	0	S	107	40	8 A	11 P	.72	
9	45	0 A	15	12 P	30	56	4.7	NW	455	40	9 A	8 P		T
10	25	4 P	14	5 A	19.5	53	9.6	NW	387	32				
											10 A	11 A		T
11	31	6 P	14	6 A	22.5	79	.1	S	118	12	7 P	10 P	.02	.2
12	45	12 N	24	0 A	34.5	73	8.2	NW	108	18				
13	33	0 A	23	12 P	28	85	0	N	119	14	7 A	12 P	.15	1.2
14	34	3 P	21	8 A	27.5	59	8.8	NW	240	20	0 A	8 A	.07	1.2
15	42	12 N	16	7 A	29	63	7.8	W	236	39	11 A	12 N		T
16	36	3 P	18	7 A	27	56	9.5	W	126	12				
17	38	4 P	18	6 A	28	47	9.0	N	120	12	11 P	12 P	.03	.5
18	35	5 A	18	12 P	26.5	64	3.6	NW	334	40	0 A	6 A	.22	1.8
19	39	2 P	14	7 A	26.5	53	10.5	NW	212	18				
20	49	4 P	19	7 A	34	62	9.5	S	75	7				
21	42	11 A	29	5 A	35.5	78	.3	N	87	17	11 A	5 P	.08	.7
22	47	2 P	24	7 A	35.5	84	7.2	E	85	11	3 A	12 N	.85	
23	43	3 P	37	8 A	40	92	0	N	185	14	0 A	1 A	.01	
24	43	3 P	35	5 A	39	70	0	NW	206	22				
25	46	11 A	31	6 A	38.5	66	5.2	N	137	18				
26	52	2 P	27	5 A	39.5	56	9.2	N	75	11				
27	41	2 P	37	0 A	39	96	0	SE	66	10	8 A	12 P	.07	
28	65	4 P	37	4 A	51	95	4.9	S	67	13	6 P	7 P	.01	
29	62	2 P	40	8 P	51	83	4.5	N	127	25	5 A	5 P	.58	
30	41	4 P	28	3 A	34.5	56	9.5	N	378	25				
31	57	4 P	20	6 A	38.5	49	11.4	N	126	14				

* Based on least time required to blow one mile.

Lloyd S. Cohan, *Observer*

MONTHLY SUMMARY

MARCH, 1950		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.557, 4th	30.57	31.05, 1943
Minimum	29.188, 23rd	29.24	28.47, 1914
Mean semi-daily	29,945	30.04	
Range	1.369	1.34	2.10, 1914; 0.85, 1915
Air Temperature, in Degrees F.			
Highest	65, 28th	63.8	85, 1929
Lowest	—9, 4th	6.1	-7.5, 1906
Mean	30.7	34.4	
Range	74	57.6	
Highest mean daily	47.5, 28th		
Lowest mean daily	3.5, 3rd	43.2	
Mean maximum	49.3	25.4	
Mean minimum	20.6		
Greatest daily range	37, 31st		
Least daily range	4, 27th		
Degree-days of heating load for month	1085		
Degree-days cumulative for season	5468		
Precipitation, in inches			
Precipitation	2.67	3.70	7.89, 1942; 0.12, 1915
Snow	5.6	7.47	27, 1899; 0, 1921
Maximum precip. in 24 hrs.	.85, 23rd		
Number of days with .01 or more	13	11	17, 1890, 1913, 1936; 3, 1915
Wind, in miles			
Total movement	5683	5944	8182, 1896; 3006, 1905
Greatest daily movement	455, 9th		
Least daily movement	42, 4th		
Mean hourly velocity	7.64	7.7	
Maximum velocity	40 8th, 9th, 18th	31.2	48, 1932, 1939, 1941, 1942
Wind, direction			
Prevailing direction	NW	WNW	
North, days	10		
Northeast, days			
East, days	1		
Southeast, days	1		
South, days	5		
Southwest, days	1		
West, days	2		
Northwest, days	11		
Weather			
Mean relative humidity, percent	67	64.2	
Mean cloudiness, percent	51.1	51.8	68, 1901; 27, 1915
Number of clear days	14	11	22, 1924; 3, 1901
Number of fair days	7	10	17, 1900; 1, 1943
Number of cloudy days	10	10	21, 1901; 1, 1915
Number of hours bright sunshine	186.4	199	292, 1924; 93, 1901
Percent of possible hours of bright sunshine	50.4	53.6	
Thunder and lightning	8th, 28th		
First Frost			

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1949.

REMARKS

The month was the coldest March since 1941 and continued the cold weather ushered in by the abrupt change which occurred February 20. The maximum of 65° was only a moderate highest temperature for the month, while the low of −9° was well below the mean of +6.1. The heating load of 1085 degree days was also the highest since the same month of 1941, while the cumulative total of 5468 remained below the normal expected at the month's end.

High winds occurred on three days of the month with a maximum velocity of 40 mph. Total wind movement however, at 5683, was below the mean of 5764. Precipitation at only 2.67″ was more than an inch below the mean for the month and may be expected to have its effect on seasonal deficiency shown more fully after crops are planted. Thunder and lightning was recorded on both the 8th and the 28th, the two milder days near each end of the month.

W. H. Thies, Extension Professor of Horticulture, contributes the following report: "A survey of Massachusetts peach orchards reveals severe damage from cold weather. All of the peach buds in some orchards have apparently been destroyed while a scattering of uninjured buds is found in a few varieties. In a Worcester County orchard examined April 5, about 10% of the buds on one odd variety were alive. Buds of other varieties showed brown centers. Several growers have reported enough live buds here and there to suggest a very light crop this season.

In the University orchard, J. S. Bailey reports no live buds at all on Elberta, Halehaven, Golden Jubilee and many other varieties. A few live buds were observed on the Greensboro variety.

The present peach situation is not surprising in view of the wide variation in winter temperatures, and the fact that we are near the northern limit of the peach belt. Peaches are among the most tender of the fruits grown in this area. But if peach growers are able to harvest a good crop three years out of four under our climatic conditions the gamble in setting a peach orchard is justifiable provided a better than average soil and site are selected."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 736 April 1950

Meteorological Observations

FOR

APRIL

1950

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 ft. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	52	2 P	22	6 A	37	56	9.6	SE	120	13				
2	55	3 P	33	12 P	44	67	6.6	W	186	18	1 A	6 A	.10	
3	56	5 P	33	0 A	44.5	88	0	SE	97	10	6 A	12 P	.17	
4	75	2 P	50	7 A	62.5	78	6.1	S	175	20	0 A	1 A	.04	
5	52	8 A	39	12 P	45.5	79	0	NW	237	28	5 A	3 P	.16	
6	45	2 P	25	12 P	35	50	9.1	NW	260	25				
7	48	3 P	23	5 A	35.5	41	11	N	241	22				
8	52	4 P	28	5 A	40	42	11.4	N	238	18				
9	46	2 P	34	6 A	40	54	9.1	N	236	25				
10	51	4 P	25	6 A	38	45	10.6	N	199	20				
11	51	2 P	27	4 A	39	62	2.4	S	91	18	3 P	7 P	.03	
12	46	1 P	30	12 P	38	54	6.3	NW	288	25				
13	34	3 P	29	0 A	31.5	100	0	N	78	11	6 A	12 P	.74	6.6
14	48	3 P	30	0 A	39	75	6.9	N	251	22	0 A	6 A	.12	.7
15	50	3 P	30	1 A	40	63	7.8	N	182	20			T	T
16	58	4 P	33	5 A	45.5	52	12.1	NW	143	20				
17	64	1 P	31	5 A	42.5	57	6.6	S	67	10				
18	70	4 P	42	6 A	56	50	10.9	NW	186	25				
19	74	2 P	40	5 A	57	60	7.8	SE	120	17				
20	55	0 A	44	12 P	49.5	100	0	N	147	12	5 A	8 P	1.67	
21	57	1 P	37	6 A	47	62	6.1	NW	145	17			T	
22	50	1 P	36	3 A	43	61	6.1	NW	150	20				
23	53	6 P	32	2 A	42.5	86	1.2	S	89	14			T	
24	56	6 P	31	5 A	43.5	57	10.4	N	127	12				
25	62	4 P	29	6 A	45.5	61	10.6	SW	75	14	4 P	8 P	.04	
26	47	0 A	42	8 A	44.5	90	0	NE	122	9	4 A	12 N	.31	
27	64	4 P	41	0 A	52.5	78	5.9	SW	102	18	10 P	12 P	.08	
28	61	5 P	44	5 A	52.5	83	4.0	S	121	9	0 A	1 A	.04	
29	43	0 A	33	12 P	38	82	0	S	94	10	8 A	3 P	.14	.3
30	60	4 P	29	6 A	44.5	61	10.5	SE	79	15				

* Based on least time required to blow one mile.

LLOYD S. COHAN. *Observer*

MONTHLY SUMMARY

APRIL, 1950		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.31, 10th	30.48	30.71, 1911
Minimum	29.66, 23rd	29.38	28.98, 1943
Mean semi-daily	29.95	29.99	
Range	0.65	1.11	1.52, 1930; .72, 1919
Air Temperature, in Degrees F.			
Highest	75, 4th	79.4	90 1941
Lowest	22, 1st	22.0	8.5, 1923
Mean	43.8	45.7	52, 1921; 41, 1943
Range	53	57.4	
Highest mean daily	57, 4th		
Lowest mean daily	31.5, 13th		
Mean maximum	54.5	56.8	
Mean minimum	33.4	34.8	
Greatest daily range	34, 19th		
Least daily range	5, 13th, 26th		
Degree-days of heating load for month	637		
Degree-days cumulative for season	6105		
Precipitation, in inches			
Precipitation	3.64	3.35	6.89, 1929; .55, 1941
Snow	7.6	2.17	11, 1891; 0, 1910, 1934
Maximum precip. in 24 hrs	1.67		
Number of days with .01 or more	13	11	18, 1909; 3, 1892
Wind, in miles			
Total movement	4646	5404	8208, 1908; 3853, 1917
Greatest daily movement	288, 12th		
Least daily movement	67, 17th		
Mean hourly velocity	6.45 mph	7.5	
Maximum velocity	28 mph, 5th	31.4	40, 1935, 1938, 1940, 1945
Wind, direction			
Prevailing direction	NW	WNW	
North, days	9		
Northeast, days	1		
East, days	0		
Southeast, days	5		
South, days	5		
Southwest, days	2		
West, days	1		
Northwest, days	7		
Weather			
Mean relative humidity, percent	66.5	61.6	
Mean cloudiness, percent	56	51.8	75, 1901; 34, 1925, 1927
Number of clear days	10	11	23, 1941; 1, 1949
Number of fair days	11	9	18, 1915; 2, 1894, 1901
Number of cloudy days	9	10	22, 1901; 1, 1941
Number of hours bright sunshine	189.1	220	329, 1941; 103, 1901
Percent of possible hours of bright sunshine	47.2	54.7	
Thunder and lightning			
Last Snow	29th	Apr. 15	Mar. 14, 1910; May 11, 1907,'45
Last Frost	30th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1949.

REMARKS

This month proved a little reluctant to usher in the spring season. After a high for the month of 74° on the 4th it was a full two weeks before any 70 temperature again appeared. The low of 22° on the first reached the mean lowest temperature for the month and the mean daily of 43.8° was nearly two degrees below the average. Householders continued to feel the dregs of winter as 637 degree days of heating load accumulated the seasonal total of 6105 degree days.

The 3.64 inches of precipitation added nearly 0 3 inch over the mean to the moisture reserve for the coming growing season.

W. H. Thies, Extension Professor of Horticulture, contributes the following report: "Cool weather during April. with its retarding effect on fruit buds, has been favorable to fruit crops in Massachusetts. This applies to fruits of all kinds. The situation may be summed up as follows: The stage of bud development is about 10 days behind that of certain seasons in the recent past. McIntosh apple buds, now in the Pre-Pink stage in some areas, are better able to withstand freezing temperatures that if they were approaching full bloom. At these two stages there is a difference of at least 3° or 4° in susceptibility to frost damage. This may mean a big difference in the number of blossoms setting fruit. McIntosh records in Amherst show full bloom occurring, on the average, around May 15 with a range of nearly 10 days in either direction. May 20 is the estimated date of full bloom this year.

As this is being written, there has been negligible low temperature damage to apple buds, and the stage is set for at least a normal crop. Peach buds suffered severely during the winter in some orchards. This must be expected occasionally since we are near the northern limit of the peach belt, and peaches are among the most tender of the fruits grown in this area. In well located orchards, however, there were still enough live peach buds of certain varieties on May 1 to provide at least a light crop.

Strawberry plants in mulched plantings came through the winter in good condition. Bloom is likely to be delayed enough to escape appreciable frost damage. Even though a few of the early blossoms do show black centers, it will mean only the loss of the earliest berries and not any extensive reduction in the number of quarts per acre."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 737 May 1950

Meteorological Observations

FOR

MAY

1950

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS

DAILY RECORDS

	Temperature							Wind			Precipitation			
	Maximum		Minimum											
Day	Degrees	Time	Degrees	Time	Mean	Mean Relative Humidity	Number of Hours Bright Sunshine	Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	46	3 P	43	6 A	44.5	87	0	SE	89	8	6 A	12 N	.34	
2	68	4 P	42	0 A	55	65	9.1	S	127	17				
3	71	4 P	43	6 A	57	53	10.6	S	118	14				
4	73	5 P	43	6 A	58	74	8.1	W	105	13				
5	59	4 P	51	9 A	55	75	0	S	89	11				
6	85	5 P	49	1 A	67	76	2.6	S	150	17			T	
7	73	12 N	49	9 P	61	41	12.7	NW	328	48				
8	58	4 P	34	5 A	46	42	13	NW	399	28				
9	74	4 P	34	5 A	54	46	11.3	SW	114	17	11 P	12 P	.02	
10	66	6 P	47	2 A	56.5	77	0.2	S	157	14	0 A	1 P	.38	
11	64	12 N	50	6 A	57	53	10.3	NW	141	20				
12	72	3 P	42	5 A	57	52	10.6	N	52	8				
13	78	3 A	40	6 P	59	63	10.5	NW	118	32	7 P	8 P	.01	
14	68	4 P	38	6 A	53	50	13.9	N	161	20				
15	62	5 P	40	5 A	51	74	5.2	NW	80	6				
16	72	4 P	50	6 A	61	67	8.5	N	140	9				
17	75	3 P	45	5 A	60	64	10.9	SW	92	18				
18	54	2 P	48	6 A	51	88	0	SE	83	10	3 A	12 P	.26	
19	51	2 P	45	5 A	48	88	0	NE	82	7	1 A	2 P	.42	
20	63	1 P	45	0 A	54	69	5.7	N	179	20				
21	76	4 P	38	5 A	57	59	12.5	NE	165	20				
22	70	2 P	35	5 A	52.5	54	13.5	SW	118	18				
23	71	2 P	42	4 A	56.5	72	8.8	S	144	13				
24	67	11 A	56	7 A	61.5	89	0.6	SE	78	28	4 A	12 P	.41	
25	64	1 P	57	3 A	60.5	89	0	E	74	10	0 A	5 P	.45	
26	79	5 P	55	5 A	67	68	11.8	N	66	8				
27	80	2 P	49	5 A	64.5	61	13.4	SW	87	12				
28	72	3 P	46	6 A	59	68	10.1	NW	88	9				
29	64	1 P	54	5 A	59	89	0.3	SW	63	9	8 A	12 P	.37	
30	75	5 P	58	3 A	66.5	85	6.5	SW	74	7	1 A	8 A	.11	
31	77	2 P	59	5 A	68	84	5.6	W	102	12				

* Based on least time required to blow one mile.

Marius P. Vavoudes, *Observer*

MONTHLY SUMMARY

MAY 1950		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.32, 9th	30.39	30.62, 1936
Minimum	29.59, 13th	29.51	29.10, 1938
Mean semi-daily	30.03	29.96	
Range	.83	0.88	
Air Temperature, in Degrees F.			
Highest	85, 6th	86.1	94.5, 1896, 1911
Lowest	34, 8th, 9th	31.2	24.0, 1900
Mean	57.9	57.1	
Range	51	54.9	
Highest mean daily	64.5, 30th, 31st		
Lowest mean daily	43, 8th		
Mean maximum	68.6		
Mean minimum	46		
Greatest daily range	40, 9th		
Least daily range	3 ,1st,		
Degree-days of heating load for month	230		
Degree-days cumulative for season	6335		
Precipitation, in inches			
Precipitation	2.77	3.60	7.44, 1931; .48, 1903
Snow			
Maximum precip. in 24 hrs.	0.45, 25th		
Number of days with .01 or more	10	12	20, 1901, 1945; 5, 1903
Wind, in miles			
Total movement	3863	4504	5946, 1907; 2180, 1894
Greatest daily movement	399, 8th		
Least daily movement	52, 12th		
Mean hourly velocity	5.4 mph	6.1	
Maximum velocity	48 mph, 7th	28.8	45, 1935
Wind, direction			
Prevailing direction	WSW	W	
North, days	5		
Northeast, days	2		
East, days	1		
Southeast, days	3		
South, days	6		
Southwest, days	6		
West, days	2		
Northwest, days	6		
Weather			
Mean relative humidity, percent	68.4	60.7	
Mean cloudiness, percent	58.3	52.1	72, 1948; 30, 1923
Number of clear days	13	11	21, 1944; 0, 1927
Number of fair days	8	11	18, 1949; 5, 1923
Number of cloudy days	10	9	20, 1927; 2, 1941
Number of hours bright sunshine	226.3	252	350, 1944; 137, 1927
Percent of possible hours of bright sunshine	50	55.6	
Thunder and lightning			
Last Snow			
Last Frost			

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1949.

REMARKS

The month made a valiant beginning to catch up the slowness of the season, providing a maximum of 85° on the 6th. only to have this mildness dispersed by a dust storm in the teeth of a 48 mile wind on the 7th. The mean daily then dropped back into the 50's and high 40's until the last week of the month when seasonable warmth was again obtained. In the month 2.77 inches of precipitation fell; nearly ¾ inch below the mean and only two stormy periods recorded rainfall in excess of ½ inch: on the 18th-19th 0.68 inches, and the 24th-25th 0.86 inches. The mean daily temperatures of 57.9° although 0.8° above average contributed to the 230 degree days of heating load which brought the season's total to 6335 at the month's end.

The last snow noted April 29, and the last frost April 30, in last month's bulletin, have not been disputed by the month's records.

W. H. Thies, Extension Professor of Horticulture, contributes the following report: "Weather conditions during May have had some interesting effects on plant growth. Lawns look unusually well and the hay crop is promising, thanks to quite ideal growing conditions. Peas, spinach and such cool weather crops have made excellent progress. But corn, beans, and others which thrive in hot weather have been marking time. Asparagus got off to a slow start but has made up for it since. Seldom have we seen strawberries look any more promising. Here is a fruit plant which seems to best under cool, cloudy conditions. We have prospects of a good strawberry crop. But instead of the first berries appearing around June 1 as they sometimes do in the Connecticut Valley, they are more lightly to appear around June 10.

Apple bloom was at least a week later than normal, and was spread over a longer period. The height of McIntosh bloom in Amherst was around May 22. Bee activity was frequently held up by cool or rainy weather. Honey bees are quite inactive when the temperature drops below 60° although bumblebees continue to fly at temperatures at least 10° lower. In spite of weather interference in bee activity, there were enough warm, sunny hours in most orchards to insure pollination. Contrary to a common notion, none of the fruits grown in this area except nuts, are wind pollinated. Bees of one kind or another are almost entirely responsible for the transfer of pollen from one blossom to another. And that means suitable weather for bee flight."

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 738 June 1950

Meteorological Observations

FOR

JUNE

1950

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 ft Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	69	10 A	64	2 A	66.5	96	0	W	132	9	3 A	9 P	1.35	
2	78	5 P	47	5 A	67.5	63	13.9	NE	110	14				
3	79	1 P	59	1 A	69	74	5	SW	193	25	9 P	12 P	.03	
4	67	3 P	53	8 A	60	73	10.3	NW	200	20	0 A	8 A	.37	
5	76	5 P	45	4 A	60.5	52	13	W	84	12				
6	84	1 A	46	5 A	65	58	8.2	SW	65	9				
7	89	5 P	53	5 A	71	62	10.3	SW	42	6				
8	90	3 P	60	6 A	75	62	9.5	SW	101	11				
9	90	3 P	61	5 A	75.5	66	11.2	S	110	12				
10	85	1 P	63	4 A	74	81	6.9	W	159	18	11 A	12 P	.81	
11	71	4 P	57	6 A	64	61	12.7	NE	211	17				
12	74	4 P	42	5 A	68	59	13.7	NW	51	6				
13	78	2 P	49	5 A	63.5	59	11.1	W	125	10				
14	70	11 A	53	2 A	61.5	81	3.3	W	79	7	4 P	7 P	.06	
15	78	4 P	53	2 A	65.5	78	10.9	NW	48	7				
16	79	2 P	54	4 A	66.5	70	9.2	W	121	13				
17	68	9 A	43	12 P	55.5	70	8.7	N	261	32	4 A	9 A	.61	
18	69	11 A	42	1 A	55.5	50	12.1	NE	197	20				
19	60	1 P	41	1 A	50.5	82	0.3	W	13	3	10.A	11 A	.01	
20	76	2 P	53	5 A	64.5	72	8.8	W	96	12				
21	79	4 P	62	4 A	70.5	74	5.6	N	126	18	3 A	5 A	.07	
22	75	4 P	47	5 A	61	55	11.4	NW	98	8				
23	89	1 P	53	5 A	71	62	10.0	W	104	10				
24	90	2 P	62	5 A	76	79	4.7	S	84	15	4 P	5 P	.03	
25	89	2 P	65	5 A	77	73	8.0	NW	46	17				
26	91	4 P	61	5 A	76	56	12.2	N	64	9				
27	86	2 P	63	5 A	74.5	69	6.0	S	157	18	2 P	4 P	.31	
28	77	5 P	55	5 A	66	61	12 6	NW	173	20				
29	82	1 P	52	5 A	67	63	9.1	S	55	12	7 P	8 P	T	
30	85	4 P	63	5 A	74	71	9.5	S	113	8				

* Based on least time required to blow one mile.

MARIUS P. VAVOUDES, *Observer*

MONTHLY SUMMARY

JUNE 1950		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.302, 7th	30.30	30.70, 1947
Minimum	29.522, 17th	29.55	29.24, 1902
Mean semi-daily	29.902	29.95	
Range	.780	0.75	
Air Temperature, in Degrees F.			
Highest	91, 26th	91.2	101, 1919
Lowest	41, 19th	40.0	34, 1891
Mean	66	65.7	
Range	50	51.3	
Highest mean daily	71, 26th		
Lowest mean daily	50.5, 4th, 19th		
Mean maximum	78.1		
Mean minimum	54.1		
Greatest daily range	41, 2nd		
Least daily range	5 1st		
Degree-days of heating load for month	68.5		
Degree-days cumulative for season	6404		
Precipitation, in inches			
Precipitation	3.65	3.75	9.68, 1922; 0.76, 1908
Snow			
Maximum precip. in 24 hrs	1.35, 1st		
Number of days with .01 or more	10	11	17, 1922, 1945; 4, 1908
Wind, in miles			
Total movement	3535	3585	4571, 1908; 1409, 1906
Greatest daily movement	261, 17th		
Least daily movement	13, 19th		
Mean hourly velocity	4.9	5.0	
Maximum velocity	32, 17th	24.6	48, 1939
Wind, direction			
Prevailing direction	W	WSW	
North, days	3		
Northeast, days	3		
East, days	0		
Southeast, days	0		
South, days	5		
Southwest, days	4		
West, days	9		
Northwest, days	6		
Weather			
Mean relative humidity, percent	67.7	66.9	
Mean cloudiness, percent	39.8	51.1	71, 1903; 28 1908
Number of clear days	11	10	22, 1908, 1941, 1943; 0, 1949
Number of fair days	16	12	23, 1912; 3, 1941
Number of cloudy days	3	8	22, 1903; 1, 1923
Number of hours bright sunshine	268.2	257	362, 1908; 102 1903
Percent of possible hours of bright sunshine	58.7	54.0	
Thunder and lightning	10th, 17th, 27th		
Last Snow			
Last Frost			

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1949.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 739 July 1950

Meteorological Observations

FOR

JULY

1950

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft
Height of wind instruments, 67 ft Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean									
	Degrees	Time	Degrees	Time				Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	84	3 P	60	6 A	72	64	10.8	N	106	13				
2	85	2 P	48	5 A	66.5	60	9.4	SW	69	10				
3	83	5 P	65	4 A	74	71	10.2	S	122	13	2 A	4 A	.14	
4	76	11 A	65	2 A	70.5	89	0.2	S	36	7	3 A	4 P	.38	
5	85	4 P	62	4 A	73.5	79	7.2	S	59	7	8 P	12 P	.13	
6	78	3 P	68	6 A	73	68	9.6	NW	155	13	0 A	1 A	.01	
7	82	5 P	51	5 A	66.5	63	13.4	NW	120	17				
8	89	4 P	55	5 A	72	60	12.9	N	25	5				
9	87	2 P	61	5 A	74	64	11.9	SE	51	6				
10	80	12 N	61	5 A	70.5	69	4.8	S	28	4				
11	82	4 P	62	4 A	72	92	.45	S	39	10	0 A	8 P	.05	
12	86	2 P	70	5 A	78	80	6.5	SW	87	11	0 A	2 A	.05	
13	90	2 P	64	4 A	77	75	8.2	S	79	12	7 P	11 P	.15	
14	75	5 P	61	6 A	68	59	12.1	NW	186	25				
15	79	2 P	46	5 A	62.5	64	11.3	SW	39	6				
16	70	11 A	58	5 A	64	79	3.2	S	66	9				
17	87	5 P	65	4 A	76	83	8.4	S	71	8				
18	91	12 N	68	5 A	79.5	62	9.5	W	107	28	1 P	4 P	1.23	
19	85	4 P	59	5 A	72	64	12.6	W	68	9				
20	66	0 A	53	12 P	59.5	88	0.0	N	48	9	6 A	3 P	0.48	
21	78	5 P	46	5 A	62	71	13.3	N	35	9			T	
22	81	6 P	51	5 A	66	65	14.9	NW	31	9				
23	83	2 P	53	5 A	68	65	14.0	S	51	9				
24	80	2 P	58	5 A	69	71	7.2	S	77	8			T	
25	83	3 P	65	1 A	74	68	9.6	W	123	14	0 A	3 A	.03	
26	79	3 P	63	5 A	71	63	12.2	NW	137	17				
27	84	2 P	51	5 A	67.5	58	12.4	NW	75	11				
28	87	2 P	55	5 A	71	67	9.2	W	51	9	5 P	6 P	T	
29	88	3 P	56	5 A	72	66	11.8	W	87	10				
30	88	2 P	62	5 A	75	69	13.1	W	89	12				
31	90	2 P	60	6 A	75	75	8.8	SW	51	28	5 P	8 P	.18	

* Based on least time required to blow one mile.

Marius P. Vavoudes, *Observer*

MONTHLY SUMMARY

JULY 1950		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.334, 15th	30.27	30.50, 1892
Minimum	29.704, 29th	29.59	29.27, 1932
Mean semi-daily	30.001	29.96	
Range	0.630	0.68	0.97, 1892 0.47, 1938
Air Temperature, in Degrees F.			
Highest	91, 18th	93.9	104, 1911
Lowest	46, 15th, 21st	46.4	40, 1890, 1898
Mean	70.6	70.8	66.3, 1891, 76.0, 1949
Range	45	47.7	
Highest mean daily	79.5, 18th		
Lowest mean daily	59.5, 20th		
Mean maximum	82.7		
Mean minimum	58.8		
Greatest daily range	37, 2nd		
Least daily range	10, 6th		
Degree-days of heating load for month			
Degree-days cumulative for season			
Precipitation, in inches			
Precipitation	2.83	4.10	14.51, 1897; 0.70, 1929
Snow			
Maximum precip. in 24 hrs.	1.23, 18th		
Number of days with .01 or more	11	11	20, 1915; 4, 1924
Wind, in miles			
Total movement	2348	34.22	5097, 1909; 1109, 1894
Greatest daily movement	186, 14th		
Least daily movement	25, 8th		
Mean hourly velocity	3.2	4.6	
Maximum velocity	28, 18th, 31st	28.7	44, 1936
Wind, direction			
Prevailing direction	WSW	SW	
North, days	4		
Northeast, days	0		
East, days	0		
Southeast, days	1		
South, days	10		
Southwest, days	4		
West, days	6		
Northwest, days	6		
Weather			
Mean relative humidity, percent	70	68.4	
Mean cloudiness, percent	47.7	50.9	70, 1943; 31, 1924
Number of clear days	14	10	22, 1923; 0, 1915
Number of fair days	13	14	24, 1909, 1921; 4, 1946
Number of cloudy days	4	7	18, 1889; 0, 1910
Number of hours bright sunshine	293.2	268	371, 1910; 180, 1931
Percent of possible hours of bright sunshine	63.2	58	
Thunder and lightning	4th, 18th, 31st		
Last Snow			
Last Frost			

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1949.

REMARKS

The month was quite normal with regard to temperature and other conditions except precipitation. The mean figures over the period of observation indicate a 4.10 inches precipitation expected for the month with but 2.83 inches recorded; of which 1.23 inches fell on the 18th. While this storm was appreciated, it did not offset the development of drouthy conditions which slowed the growth of tobacco and made it unnecessary to mow lawns which were not sprinkled.

Even though a mean daily temperature of 59.5 degrees was recorded on the 20th, no heating load is considered in this locality to accumulate during July and August under conditions which are near the mean values.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 740 August 1950

Meteorological Observations

FOR

AUGUST

1950

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
Day	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	77	12 N	66	4 A	71.5	88	0.6	N	62	11	4 A	12 N	.28	
2	70	2 P	58	5 A	64	76	4.2	N	70	7				
3	72	4 P	61	5 A	66.5	76	7.4	S	37	6				
4	80	2 P	60	5 A	70	67	11.4	NW	86	13				
5	79	3 P	53	6 A	66	70	10.6	NW	70	18				
6	75	2 P	59	6 A	67	67	9.6	NE	124	13				
7	76	4 P	52	5 A	64	66	12.1	NE	68	9	5 A	6 A	.01	
8	84	5 P	46	5 A	65	67	12.8	N	34	8				
9	88	3 P	52	6 A	70	67	11.0	W	56	13				
10	85	4 P	67	5 A	76	71	8.1	W	77	8	9 P	12 P	.02	
11	81	12 N	63	5 A	72	68	7.1	NW	79	15				
12	78	4 P	50	6 A	64	58	12.7	N	84	8				
13	81	3 P	50	6 A	65.5	56	12.6	N	74	13				
14	79	5 P	53	4 A	66	63	9.8	NW	19	3				
15	83	4 P	50	5 A	66.5	60	11.7	NW	29	7				
16	84	3 P	59	5 A	71.5	75	9.7	S	119	13	5 P	11 P	.16	
17	84	2 P	57	6 A	70.5	83	9.5	S	76	9				
18	85	3 P	53	4 A	69	86	6.6	S	104	13				
19	80	12 N	67	5 A	73.5	88	3.3	S	85	8	2 P	12 P	1.15	
20	73	0 A	62	11 P	67.5	100	0	SW	82	10	9 P	12 P	.01	
21	76	5 P	52	6 A	64	69	11.9	NW	117	17				
22	77	2 P	46	6 A	61.5	72	10.6	SW	28	5				
23	80	4 P	46	7 A	63	78	10.5	S	70	8				
24	84	4 P	58	5 A	71	82	9.3	SW	54	5				
25	83	3 P	58	5 A	70.5	80	10.3	SW	69	7				
26	86	3 P	61	5 A	73.5	83	6.1	SW	58	10				
27	87	3 P	62	1 A	74.5	79	8.8	S	86	11				
28	84	3 P	61	3 A	72.5	80	9.4	S	153	13	7 P	9 P	.13	
29	85	2 P	70	4 A	77.5	91	2.9	S	109	12	4 P	5 P	.01	
30	78	3 P	63	6 A	70.5	79	8.7	NE	58	10				
31	71	6 P	62	5 A	66.5	95	0	SE	31	5	12 P	6 A	.22	

* Based on least time required to blow one mile.

Marius P. Vavoudes, *Observer*

MONTHLY SUMMARY

AUGUST 1950		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.240, 24th	30.32	30.50, 1934
Minimum	29.747, 20th	29.61	28.87, 1930
Mean semi-daily	30.022	30.00	
Range	0.493	0.71	
Air Temperature, in Degrees F.			
Highest	88, 9th	91.6	100, 1918, 1948
Lowest	46, 8th, 22nd, 23rd	43.4	34, 1940
Mean	68.8	68.6	62.4, 1903
Range	42	48.1	
Highest mean daily	74, 28th		
Lowest mean daily	62, 21st		
Mean maximum	80.2		
Mean minimum	57.3		
Greatest daily range	38, 8th		
Least daily range	11, 1st, 3rd, 20th		
Degree-days of heating load for month			
Degree-days cumulative for season			
Precipitation, in inches			
Precipitation	2.94	4.08	8.40, 1948; .31, 1894
Snow			
Maximum precip. in 24 hrs.	1.15, 19th		
Number of days with .01 or more	9	11	16, 1892, 1933; 4, 1899
Wind, in miles			
Total movement	2268	3127	4,271, 1910; 1,920, 1894
Greatest daily movement	153, 28th		
Least daily movement	19, 14th		
Mean hourly velocity	3.1	4.2	
Maximum velocity	18, 5th	22.7	40, 1941
Wind, direction			
Prevailing direction	WSW	SW	
North, days	5		
Northeast, days	3		
East, days	0		
Southeast, days	1		
South, days	9		
Southwest, days	5		
West, days	2		
Northwest, days	6		
Weather			
Mean relative humidity, percent	75.5	70.2	
Mean cloudiness, percent	55.9	49.7	67, 1901, 1946; 27, 1923
Number of clear days	12	9	23, 1941; 0, 1915, 1929
Number of fair days	13	13	25, 1912; 3, 1939
Number of cloudy days	6	9	18, 1901, 1928; 2, 1910, 1923
Number of hours bright sunshine	2593	237	332, 1941; 152, 1915, 1929
Percent of possible hours of bright sunshine	58.2	55.2	
Thunder and lightning	5th, 10th, 16th, 18th, 28th, 29th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1949.

REMARKS

The weather for the month was quite comfortable with the highest temperature, 88 degrees, reached on the 9th. The mean daily of 66.8 degrees, however, was accompanied by the mean relative humidity of 75.5% so that rather stuffy weather would have been experienced with much increase in temperature.

Only 2.94 inches of rain of the mean expected 4.08 inches was recorded and 1.15 inches of the total fell on the 19th. This broke the drouthy period to which farmers were giving serious consideration. The total wind movement of only 2268 miles against a mean of 3127 miles indicates that even normal wind could have made the effect of the drouth much more serious. Cloudiness above the mean value also undoubtedly contributed to making the drouthy conditions more bearable.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 741 September 1950

Meteorological Observations

FOR

SEPTEMBER

1950

H. N. STAPLETON

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 ft. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	84	12 P	70	2 A	77	94	2.5	SW	78	12	12 A	5 P	.93	
2	81	1 P	64	7 A	72.5	85	9.1	N	51	12				
3	82	2 P	56	8 A	64	98	0.0	N	53	7	4 A	12 P	.37	
4	75	3 P	52	1 A	63.5	82	8.3	NW	97	20	0 A	1 A	.05	
5	68	3 P	48	5 A	58	73	11.1	N	149	18				
6	75	4 P	46	6 A	60.5	67	11.9	NW	45	6				
7	80	5 P	46	6 A	63	73	11.9	SW	24	4				
8	84	4 P	49	6 A	66.5	77	10.8	NW	15	3				
9	84	2 P	53	6 A	68.5	77	7.9	S	48	7				
10	72	3 P	60	6 A	66	92	0.3	N	48	8	8 A	8 P	.24	
11	61	12 N	56	5 A	58.5	90	0.0	N	163	17	0 A	2 P	.31	
12	63	2 P	51	6 A	57	74	7.9	N	189	14	1 A	7 A	.08	
13	69	3 P	43	6 A	56	76	9.9	NW	39	8				
14	65	3 P	51	5 A	58	85	6.7	SE	42	4	6 A	5 A	.12	
15	74	12 N	60	2 A	67	84	4.7	SW	110	13	5 A	12 P	.05	
16	70	2 P	54	5 A	62	72	11.5	NW	218	20	0 A	4 A	.07	
17	64	3 P	35	6 A	49.5	72	11.7	NW	85	13				
18	70	4 P	35	6 A	52.5	74	10.2	S	49	7				
19	68	5 P	51	3 A	59.5	88	1.7	S	108	8				
20	58	2 P	50	6 A	54	86	1.7	N	87	5				
21	76	2 P	48	6 A	62	78	8.1	W	50	9				
22	55	4 P	49	6 A	52	87	0.0	N	54	4	3 P	9 P	.02	
23	65	11 A	51	6 A	58	62	10.4	NW	249	25				
24	53	12 N	34	6 A	43.5	55	8.3	NW	232	18				
25	60	3 P	29	6 A	44.5	76	10.7	W	92	12				
26	58	4 P	32	5 A	45	86	5.7	W	20	5				
27	65	2 P	44	7 A	54.5	89	6.4	SW	35	5				
28	64	3 P	52	8 A	58	86	6.8	SW	53	4				
29	67	3 P	46	7 A	56.5	89	5.9	SW	28	4				
30	72	4 P	50	8 A	61	88	6.6	W	22	2				

* Based on least time required to blow one mile.

MARIUS P. VAVOUDES, *Observer*

MONTHLY SUMMARY

SEPTEMBER 1950		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.469, 27th	30.45	30.65, 1924
Minimum	29.454, 23rd	29.57	28.41, 1938
Mean semi-daily	30.044	30.00	
Range	1.015	.88	1.99, 1938; .57, 1910
Air Temperature, in Degrees F.			
Highest	84, 1st	87.7	97, 1895, 1929
Lowest	29, 25th	33.2	24.5, 1914
Mean	58.9	61.7	
Range	55	54.5	
Highest mean daily	72.5, 1st		
Lowest mean daily	42, 25th		
Mean maximum	69.4		
Mean minimum	48.8		
Greatest daily range	35, 8th, 18th		
Least daily range	5, 11th		
Degree-days of heating load for month	209		
Degree-days cumulative for season	209		
Precipitation, in inches			
Precipitation	2.34	4.24	14.55, 1938; .52, 1914
Snow			
Maximum precip. in 24 hrs	.93, 1st		
Number of days with .01 or more	10	10	16, 1933; 3, 1903
Wind, in miles			
Total movement	2530	3271	4,686, 1896; 1,414, 1894
Greatest daily movement	249, 23rd		
Least daily movement	15, 8th		
Mean hourly velocity	3.5	4.5	
Maximum velocity	25, 23rd	25.9	80, 1938
Wind, direction			
Prevailing direction	WNW	WSW	
North, days	8		
Northeast, days	0		
East, days	0		
Southeast, days	1		
South, days	3		
Southwest, days	6		
West, days	4		
Northwest, days	8		
Weather			
Mean relative humidity, percent	80.5	73.6	
Mean cloudiness, percent	55	49.9	70, 1934; 23, 1947
Number of clear days	10	10	19, 1932; 2, 1907, 1928
Number of fair days	13	10	19, 1908; 3, 1889
Number of cloudy days	7	10	20, 1934; 3, 1941, 1948
Number of hours bright sunshine	2087	201	255, 1916; 106, 1934
Percent of possible hours of bright sunshine	56	54.9	
Thunder and lightning	0		
First Frost	25th	Sept. 21	Oct. 13, 1909; Aug. 22, 1894-95

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1949.

REMARKS

With the last half of the month registering very cool temperatures, the mean for the month ran nearly three degrees below the average of 61.7 degrees. The low temperatures accompanied by less than average wind movement made the drouth more bearable. Of the 2.34 inches of precipitation recorded, 0.93 came in one storm on the first day of the month which spread the remainder very thin in a month, with an expected average 4.24 inches total rainfall.

Heating load for the month was 209 degree days, slightly over the average figure but hardly a measure of the seasonal load to be anticipated.

The first frost of the season occurred the night of the 24-25th

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 742 October 1950

Meteorological Observations

FOR

OCTOBER

1950

EARLE COX

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	84	4 P	48	6 A	66	77	8.6	NW	37	7				
2	83	2 P	53	6 A	68	85	9.9	SW	53	6				
3	82	2 P	54	6 A	68	79	6.8	S	108	13				
4	70	2 P	50	6 A	60	70	10.5	N	178	12				
5	62	2 P	32	7 A	47	75	11.1	NW	73	13				
6	68	3 P	30	6 A	49	74	9.4	W	41	13				
7	68	3 P	36	6 A	52	83	8.1	NW	66	11				
8	71	3 P	44	5 A	57.5	79	6.3	SE	84	17				
9	77	1 A	51	6 A	64	77	6.3	W	79	7				
10	61	4 A	52	12 P	56.5	93	0.0	N	96	12	5 A	12 P	1.01	
11	69	1 P	47	6 A	58	86	8.1	SW	79	9				
12	61	1 P	59	8 A	60	89	1.5	SW	67	8	2 A	4 P	.71	
13	57	10 A	50	12 P	53.5	72	4.1	W	246	28				
14	57	3 P	39	6 A	48	68	8.5	NW	269	20				
15	62	4 P	32	7 A	47	80	9.9	W	37	4				
16	63	4 P	29	7 A	46	74	10.2	NW	44	7				
17	72	3 P	38	7 A	55	84	9.3	S	108	13				
18	73	3 P	49	6 A	61	88	6.7	W	55	6				
19	77	4 P	58	7 A	67.5	86	6.3	S	120	10				
20	67	2 P	59	5 A	63	59	9.3	NW	221	25				
21	67	3 A	30	7 A	48.5	73	10.3	S	57	7				
22	66	2 P	46	6 A	56	88	5.3	N	65	12				
23	44	4 P	39	8 A	41.5	97	0.0	N	118	9	7 A	1 P	.09	
24	45	2 P	42	0 A	43.5	97	0.0	E	52	7	7 A	8 A	.01	
25	58	3 P	43	7 A	50.5	83	5.1	W	96	18	5 A	8 A	.03	
26	49	2 P	37	7 A	43	65	9.5	NW	221	20				
27	53	4 P	22	6 A	37.5	80	9.5	W	43	5				
28	49	3 P	24	4 A	36.5	85	0.5	NW	39	3				
29	67	4 P	47	0 A	57	92	0.0	S	71	8	4 A	6 A	.02	
30	74	3 P	54	7 A	64	82	0.0	NW	90	13				
31	70	3 P	41	7 A	55.5	67	9.7	NW	55	10				

* Based on least time required to blow one mile.

Marius P. Vavoudes, *Observer*

MONTHLY SUMMARY

OCTOBER 1950		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.592, 16th	30.53	30.68, 1929
Minimum	29.401, 12th	29.42	29.00, 1926
Mean semi-daily	30.116	30.06	
Range	1.191	1.11	1.47, 1926; .76, 1899
Air Temperature, in Degrees F.			
Highest	84, 1st	79.4	90.5, 1908
Lowest	22, 27th	23.4	17, 1936
Mean	54.2	50.5	57.4, 1947; 43.2, 1890
Range	62	56.0	
Highest mean daily	68, 2nd, 3rd		
Lowest mean daily	36.5, 28th		
Mean maximum	65.4		
Mean minimum	43.4		
Greatest daily range	38, 6th		
Least daily range	2, 12th		
Degree-days of heating load for month	344		
Degree-days cumulative for season	553		
Precipitation, in inches			
Precipitation	1.87	3.29	8.81, 1911; .01, 1924
Snow	—		
Maximum precip. in 24 hrs	1.01, 10th		
Number of days with .01 or more	6	9	15, 1913; 1, 1897, 1924
Wind, in miles			
Total movement	2968	4074	5,467, 1910; 2,540, 1894
Greatest daily movement	269, 14th		
Least daily movement	37, 1st, 15th		
Mean hourly velocity	3.98	5.4	
Maximum velocity	28, 13th	29.5	42, 1937
Wind, direction			
Prevailing direction	WNW	W	
North, days	4		
Northeast, days	0		
East, days	1		
Southeast, days	1		
South, days	5		
Southwest, days	3		
West, days	7		
Northwest, days	10		
Weather			
Mean relative humidity, percent	80.22	69.0	
Mean cloudiness, percent	45	48	67, 1932; 18, 1924
Number of clear days	14	10	21, 1938; 1, 1911
Number of fair days	10	10	17, 1924; 3, 1938
Number of cloudy days	7	11	19, 1896; 3, 1924
Number of hours bright sunshine	200.8	175.0	232, 1923, 1938; 91, 1913
Percent of possible hours of bright sunshine	58.5	51.3	
Thunder and lightning			
First Frost			

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1949.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 743 November 1950

Meteorological Observations

FOR

NOVEMBER

1950

EARLE COX

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	72	3 P	42	1 A	57	79	9.1	W	13	3				
2	82	2 P	44	7 A	63	76	8.0	W	90	20				
3	48	1 P	43	5 A	45.5	89	0.0	N	135	15	4 A	2 P	.28	
4	47	8 A	42	1 A	44.5	91	0.0	N	119	8	9 A	12 P	.79	
5	64	8 A	37	12 P	50.5	70	5.0	NW	235	25	0 A	4 A	.80	
6	55	3 P	31	7 A	43	69	8.6	S	102	9				
7	65	4 P	32	8 A	48.5	78	9.0	S	94	9				
8	65	3 P	50	6 A	57.5	82	4.2	S	140	13				
9	65	3 P	54	3 A	59.5	87	1.2	S	151	13				
10	52	2 P	36	12 P	44	72	9.5	NW	225	28				
11	46	1 P	29	12 P	37.5	86	2.6	NW	40	5				
12	44	12 N	21	7 A	32.5	85	9.0	NW	22	2				
13	46	2 P	21	7 A	33.5	77	9.0	SW	22	2				
14	47	2 P	25	4 A	36	79	9.0	NW	50	11				
15	57	3 P	21	6 A	39	81	8.0	S	68	12				
16	63	3 P	42	1 A	52.5	81	2.6	S	145	13				
17	54	11 A	38	12 P	46	79	5.0	NW	174	13	10 P	12 P	.05	
18	43	3 P	37	2 A	40	80	5.0	NW	208	14	0 A	1 A	.07	
19	58	3 P	22	7 A	40	81	8.0	S	130	10				
20	63	12 N	43	2 A	53	88	0.5	S	330	32	4 P	12 P	1.35	
21	38	8 A	29	12 P	33.5	89	0.0	NW	343	32	0 A	4 A	.44	T
22	37	2 P	28	8 A	32.5	75	8.3	NW	308	28				
23	33	2 P	19	3 A	26	82	3.4	N	50	6				
24	46	12 P	31	5 A	38.5	88	0.0	NE	141	20				
25	52	8 P	42	12 P	47	96	0.0	E	550	48	2 P	12 P	2.28	
26	43	8 P	37	8 A	40	93	2.3	S	252	11	0 A	12 P	.39	
27	44	11 A	31	12 P	37.5	82	6.5	S	78	9	0 A	2 A	.03	
28	40	11 A	31	1 A	35.5	91	0.4	NW	91	14	2 A	2 P	.12	0.5
29	40	11 A	33	1 A	36.5	88	4.0	SW	140	17			T	T
30	37	12 N	31	8 A	34	85	0.2	SW	177	9				
31														

* Based on least time required to blow one mile.

Marius P. Vavoudes, *Observer*

MONTHLY SUMMARY

NOVEMBER 1950		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.447, 14th	30.59	30.87, 1932
Minimum	29.352, 25th	29.30	28.73, 1904
Mean semi-daily	29.978	30.05	
Range	1.095	1.29	1.84, 1904; 89. 1943
Air Temperature, in Degrees F.			
Highest	82, 2nd	66.0	82 ,1950
Lowest	19, 23rd	12.9	4, 1938
Mean	42.8	38.9	44.1, 1931; 33.6, 1901
Range	63	53.0	
Highest mean daily	63, 2nd		
Lowest mean daily	26, 23rd		
Mean maximum	51.5		
Mean minimum	34.2		
Greatest daily range	38, 2nd		
Least daily range	5, 3rd-4th		
Degree-days of heating load for month	667	783	
Degree-days cumulative for season	1219.5		
Precipitation, in inches			
Precipitation	6.60	3.41	8.64, 1927; 0.63, 1917
Snow	0.5	2.34	13.50, 1938
Maximum precip. in 24 hrs	2.28, 25th		
Number of days with .01 or more	11	9	22, 1921; 2, 1904
Wind, in miles			
Total movement	4623	4531	5,978, 1906; 2,589, 1889
Greatest daily movement	550, 25th		
Least daily movement	13, 1st		
Mean hourly velocity	6.3	6.3	
Maximum velocity	48, 25th	30.3	48, 1948, 1950
Wind, direction			
Prevailing direction	W	WNW	
North, days	3		
Northeast, days	1		
East, days	1		
Southeast, days	0		
South, days	10		
Southwest, days	3		
West, days	2		
Northwest, days	10		
Weather			
Mean relative humidity, percent	82.5	70.6	
Mean cloudiness, percent	56	55.1	78, 1947; 34, 1917
Number of clear days	11	6	15, 1903; 0, 1948
Number of fair days	8	9	16, 1912; 4, 1889. 1930, '32 '35
Number of cloudy days	11	15	24, 1927; 9, 1905, 1917, 1949
Number of hours bright sunshine	138.4 hrs	121	182, 1903; 44, 1948
Percent of possible hours of bright sunshine	47.2	41.3	
Thunder and lightning	0		
First Frost		Nov. 6	Oct. 10, 1925; Dec. 13, 1941

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1949.

SUMMARY

The outstanding feature of the weather during the month was the high wind and rainfall which came on the 25th. The daily movement of wind was 550 miles, which is the highest that has occurred since February 15, 1940. The recorded velocity of 48 miles per hour was a record for the month of November. A total of 2.28 inches of rainfall came with the wind storm.

A new record for air temperature in November occurred on November 2 when the air temperature was at 82° F. In general, warm weather prevailed throughout the month giving a mean daily of 42.8° F. as compared to a normal of 38.9° F. The degree days of 667 was below the normal of 783.

The rain which came with the storm on the 25th resulted in a total precipitation for the month of 6.60 inches, which was considerably above the normal of 3.41. The total precipitation to the end of November was 37.23 inches which is somewhat below the normal of 40.31 inches.

The mean relative humidity of 82.5 per cent was far above the normal of 70.6.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 744 December 1950

Meteorological Observations

FOR

DECEMBER

1950

EARLE COX

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 ft. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	38	10 A	26	12 P	32	83	1.7	NW	98	14				
2	36	2 P	21	6 A	28.5	82	4.4	S	35	8				
3	56	3 P	26	6 A	41	90	5.7	S	60	9				
4	64	1 P	51	0 A	57.5	90	0.0	S	230	18	12 N	12 P	1.81	
5	43	4 P	30	12 P	36.5	74	5.0	N	410	28				
6	43	3 P	24	7 A	33.5	74	7.3	N	196	17				
7	42	12 P	28	3 A	35	80	0.0	NE	153	28				
8	50	2 P	42	0 A	46	97	0.0	SE	149	9	2 A	12 P	.65	
9	45	2 P	31	12 P	38	97	0.0	SW	52	7				
10	41	2 P	25	7 A	33	90	6.6	N	67	14				
11	51	1 A	34	0 A	32.5	89	1.5	N	129	14	2 A	6 A	.39	
12	39	0 A	30	12 P	34.5	74	1.2	NW	120	13				T
13	40	2 P	24	7 A	32	75	7.2	SW	54	5				
14	37	1 P	22	4 A	29.5	72	4.9	S	48	4				
15	33	12 P	20	7 A	26.5	86	0.0	N	2	3	11 A	12 P	.17	2.0
16	35	3 P	31	12 P	33	92	0.0	N	110	12				
17	37	3 P	25	6 A	31	92	0.0	W	5	2	0 A	8 P	.04	1.0
18	32	2 P	14	7 A	23	86	0.0	N	231	20				
19	26	3 P	13	12 P	19.5	79	7.9	NW	224	15				
20	27	3 P	5	6 A	16	77	7.2	N	50	11				
21	32	3 P	7	8 A	19.5	83	7.2	W	9	1				
22	34	2 P	16	3 A	25	86	0.0	S	114	10				T
23	40	3 P	24	8 A	32	80	0.0	S	43	12				
24	39	2 P	30	7 A	34.5	87	0.0	S	90	32	2 P	4 P	.06	1.0
25	22	1 P	14	12 P	18	68	6.0	NW	297	28				
26	15	3 P	12	6 A	13.5	77	1.0	W	112	11	12 N	3 P	.06	2.0
27	16	3 P	-3	7 A	6.5	73	9.1	W	72	13				
28	30	3 P	-3	6 A	13.5	73	9.1	S	47	8				
29	33	5 P	9	0 A	21	95	0.0	N	30	11	8 A	12 P	1.26	0.5
30	34	2 P	22	8 A	28	99	3.5	N	0	0				
31	37	2 P	26	0 A	31.5	97	4.1	N	25	20	2 A	7 A	.20	2.0

* Based on least time required to blow one mile.

Marius P. Vavoudes, *Observer*

MONTHLY SUMMARY

DECEMBER 1950		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.569, 7th	30.66	31.104, 1949
Minimum	29.384, 4th	29.27	28.85, 1915
Mean semi-daily	30.027	30.06	
Range	1.185	1.38	1.78, 1895, 1.01, 1892
Air Temperature, in Degrees F.			
Highest	64, 4th	54.3	65.5, 1908
Lowest	—3, 27th, 28th	1.09	—22.5, 1917
Mean	29.1	27.5	36.9, 1891; 17.1, 1917
Range	67	56.2	
Highest mean daily	57.5, 4th		
Lowest mean daily	6.5, 27th		
Mean maximum	37.0		
Mean minimum	21.8		
Greatest daily range	33, 28th		
Least daily range	3, 26th		
Degree-days of heating load for month	1114.0		
Degree-days cumulative for season	2333.5		
Precipitation, in inches			
Precipitation	4.64	3.39	7.77, 1901; .58, 1943
Snow	8.5	8.50	26.50, 1902, T, 1891, 1943
Maximum precip. in 24 hrs.	1.81, 4th		
Number of days with .01 or more	9	10	17, 1902; 4, 1892, 1943
Wind, in miles			
Total movement	3289	4710	6,694, 1925; 3,239, 1918
Greatest daily movement	410, 5th		
Least daily movement	0, 30th		
Mean hourly velocity	4.4	6.3	
Maximum velocity	32, 24th	31.4	66, 1949
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	11		
Northeast, days	1		
East, days	0		
Southeast, days	1		
South, days	8		
Southwest, days	2		
West, days	4		
Northwest, days	4		
Weather			
Mean relative humidity, percent	83.8	69.4	
Mean cloudiness, percent	57.4	54.9	71, 1929; 39, 1919
Number of clear days	8	8	15, 1890, 0.1948
Number of fair days	7	9	16, '09; 4, '89, '30, '31, '36, '38
Number of cloudy days	16	14	25, 1948; 7, '09, '23
Number of hours bright sunshine	100.6	128	172, 1896; 27, 1948
Percent of possible hours of bright sunshine	35.6	45.2	
Thunder and lightning			
First Frost		Nov. 6	

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1949.

ANNUAL SUMMARY

ANNUAL		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.77, Feb. 8th	30.81	31.10, 1949
Minimum	29.18, Mar. 23rd	28.95	28.41, 1938
Mean semi-daily	30.05	30.01	
Range	1.59	1.85	2.47, 1938; 1.38, 1933
Air Temperature, in degrees F.			
Highest	91, June 26th, June 18th	95.7	104, 1911
Lowest	—9 Mar. 4th	—12.2	—26, 1904
Mean	48.3	47.4	56.9, 1949; 44, 1904
Range	100	107.8	
Highest mean daily	79.5, July 18th		
Lowest mean daily	0, Feb. 20th		
Mean maximum	59.5	57.8	
Mean minimum	38.3	36.5	
Greatest daily range	41, June 2nd		
Least daily range	2, Oct. 12th		
Degree-days cumulative for season	6404		
Precipitation, in inches			
Precipitation	42.17	43.70	59.00, 1938; 30.68, 1908
Snow	53.1	47.78	89.00, 1893; 24.50, 1919
Maximum precip. in 24 hrs.	2.28, Nov. 25th		
Number of days with .01 or more	132	124	146, 1945; 96, 1924
Wind, in miles			
Total movement	43,885	52,223	63,571, 1908; 36,257, 1894
Greatest daily movement	550, Nov. 25th		705, 1909
Least daily movement	0, Dec. 30th		
Mean hourly velocity	5.0	5.8	
Maximum velocity	48, Nov. 25th, May 27th	39.5	80, 1938
Wind, direction			
Prevailing direction	WNW	W	
North, days	83		
Northeast, days	18		
East, days	7		
Southeast, days	17		
South, days	70		
Southwest, days	39		
West, days	47		
Northwest, days	84		
Weather			
Mean relative humidity, percent	74.7	67.6	
Mean cloudiness, percent	55.2	51.7	60, '98, '01, '02; 41, '08, '24
Number of clear days	128	116	217, 1941; 59, 1927
Number of fair days	125	123	182, 1912; 64, 1936
Number of cloudy days	112	126	179, '01, '02; 71, 1910, 1941
Number of hours bright sunshine	2273.0	2,353	3038, 1941; 1864, 1902
Percent of possible hours of bright sunshine	49.5	52.8	
Last snow	April 29th	April 15	Mar. 14 '10; May 11, '07, '45
First snow	Nov. 21st	Nov. 6	Oct. 10, '25; Dec. 13, '41
Last frost	Apr. 30th	May 14	Apr. 14, '43; June 8, '32
First frost	Sept. 25th	Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 745 January 1951

Meteorological Observations

FOR

JANUARY

1951

EARLE COX

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	36	2 P	13	7 A	24.5	88	7.9	NW	55	7				
2	35	3 P	15	5 A	25	90	3.5	W	35	6				
3	44	8 P	35	0 A	39.5	92	0.0	SE	163	13				
4	55	12 N	34	12 P	44.5	82	0.0	SW	211	28	1 P	2 P	.07	
5	38	2 P	24	8 A	31	56	0.0	NW	119	13				
6	44	2 P	26	0 A	35	78	0.0	S	91	15				
7	38	0 A	19	12 P	28.5	88	0.0	N	168	11	10 A	12 P	.50	7.0
8	19	6 A	10	12 P	14.5	83	6.0	NW	231	22	0 A	5 A	.03	0.5
9	30	2 P	—4	7 A	13	81	8.0	S	85	10				
10	38	3 P	10	7 A	24	81	7.1	S	72	6				
11	31	5 P	11	6 A	21	91	0.0	N	16	1	8 P	10 P	.02	0.3
12	38	3 P	30	0 A	34	70	3.0	NW	194	25				
13	39	3 P	23	12 P	31	69	7.9	N	188	14				
14	32	8 P	7	7 A	19.5	85	1.0	W	14	6	5 P	12 P	.38	4.0
15	43	2 P	28	0 A	35.5	86	3.0	NW	119	28	0 A	1 P	.52	
16	33	1 P	26	12 P	29.5	68	3.0	NW	338	25				
17	40	4 P	17	4 A	28.5	71	0.5	S	120	12				
18	43	2 P	30	7 A	36.5	77	3.0	S	29	4				
19	53	4 P	26	6 A	39.5	87	6.9	SW	20	8	7 A	8 A	T	
20	50	3 P	28	7 A	39	94	0.0	SW	18	8				
21	46	10 A	17	12 P	31.5	79	0.0	NW	254	32				
22	23	3 P	11	8 A	17	56	8.5	N	231	14				
23	36	12 P	9	7 A	22.5	76	0.0	N	34	13				
24	45	11 A	33	12 P	39	91	0.0	SW	147	15	6 A	3 P	.91	
25	39	3 P	27	8 A	33	89	2.0	N	51	9				
26	31	4 P	22	7 A	26.5	71	5.5	NW	165	18				
27	28	3 P	20	8 A	24	74	0.0	SW	138	8				
28	26	3 P	18	6 A	22	76	2.5	NW	36	6	4 P	12 P	.23	1.0
29	29	2 P	19	12 P	24	91	1.5	NW	89	11	0 A	11 A	.16	
30	22	10 A	4	12 P	13	72	5.1	N	161	25				
31	10	12 P	—1	7 A	4.5	74	0.0	N	163	12	9 A	12 P	.46	5.5

* Based on least time required to blow one mile.

Marius P. Vavoudes, *Observer*

MONTHLY SUMMARY

JANUARY, 1951	Normal	Extremes
Barometer, in inches (Readings reduced to sea level)		
Maximum 30.728, 31st	30.70	31.00, 1927
Minimum 28.996, 15th	29.20	28.55, 1913
Mean semi-daily 30.064	30.07	
Range 1.732	1.50	2.18, 1913; 0.97, 1896
Air Temperature, in Degrees F.		
Highest 55, 4th	51.1	66.0, 1932
Lowest —4, 9th	—7.1	—26.0, 1904
Mean 27.4	24.2	34.2, 1913; 13.9, 1918
Range 59	58.2	
Highest mean daily 44.5, 4th		
Lowest mean daily 4.5, 31st		
Mean maximum 35.9		
Mean minimum 18.9		
Greatest daily range 34, 9th		
Least daily range 7, 16th		
Degree-days of heating load for month 1104.5	1265	
Degree-days cumulative for season 3438.0		
Precipitation, in inches		
Precipitation 3.28	3.61	7.15, 1898; 1.07, 1896
Snow 16.2	13.32	33,1898, 1923; 1.50, '08
Maximum precip. in 24 hrs. 0.91, 24th		
Number of days with .01 or more 10	11	17, '50; '20; 4, 1901
Wind, in miles		
Total movement 3755	5055	7770, 1908; 2896, 1895
Greatest daily movement 338, 16th		
Least daily movement 14, 14th		
Mean hourly velocity 5.0	6.8	
Maximum velocity 32, 21st	32.7	47, 1938
Wind, direction		
Prevailing direction WNW	WNW	
North, days 8		
Northeast, days 0		
East, days 0		
Southeast, days 1		
South, days 5		
Southwest, days 5		
West, days 2		
Northwest, days 10		
Weather		
Mean relative humidity, percent 79.5	70.1	
Mean cloudiness, percent 51.0	55	78, 1932; 37, 1908
Number of clear days 6	9	20, 1944; 1, 1949
Number of fair days 8	9	18, 1890; 1926; 3, 1916, 1944
Number of cloudy days 17	13	22, 1923, '31, '49; 4, 1920. '39
Number of hours bright sunshine 85.9	137	214, 1920; 50.4, 1949
Percent of possible hours of bright sunshine 29.2	46.7	
Thunder and lightning		
First Frost		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1950.

SUMMARY

The mean daily temperatures the forepart of January were above normal. This, together with above normal mean daily temperatures during November and December, resulted in an accumulated degree days of 3,013 to January 22, which is the mean mid-point of the heating season. This is about 10 per cent below the normal of 3,352. The mean daily for the month of 27.4° F. was more than 3° F. above the normal of 24.2° F.

The precipitation during the month of 3.28 inches was below the normal of 3.61 inches.

A mean relative humidity of 79.5 per cent was considerably above the normal of 70.1 per cent and added to the ventilation problems in poultry houses and dairy barns.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 746 February 1951

Meteorological Observations

FOR

FEBRUARY

1951

EARLE COX

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 ft. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	48	9 P	10	0 A	29	98	0.0	S	76	20	0 A	12 P	1.17	
2	46	0 A	17	12 P	31.5	70	5.5	NW	330	32				
3	20	8 P	7	7 A	13.5	72	0.3	N	60	11	11 P	12 P	.02	.5
4	39	3 P	16	2 A	27.5	77	7.5	NW	122	18	0 A	6 A	.13	1.5
5	42	4 P	14	7 A	28	72	7.1	N	2	8				
6	41	4 P	15	7 A	28	77	7.0	SW	31	20				
7	53	1 P	26	12 P	39.5	95	0.0	S	241	32	2 P	12 P	1.33	4.0
8	8	2 P	6	8 P	7	83	6.9	NW	416	40				
9	14	3 P	2	7 A	8	75	8.9	NW	143	11				
10	22	5 P	—6	7 A	8	75	9.0	NW	24	5				
11	35	3 P	12	0 A	23.5	79	5.0	S	62	8				
12	42	4 P	26	5 A	34	82	0.3	S	46	6				
13	52	4 P	33	3 A	42.5	85	1.1	S	25	14				
14	37	1 A	20	12 P	28.5	78	0.0	N	179	22	1 P	3 P	.02	T
15	31	4 P	15	8 A	23	67	8.9	N	148	11				
16	38	4 P	11	7 A	24.5	75	9.0	SW	25	7				
17	33	8 P	20	7 A	26.5	91	0.5	N	53	8	4 P	12 P	0.38	
18	38	2 P	33	0 A	35.5	97	0.0	N	134	12	0 A	9 A	0.66	
19	40	2 P	34	7 A	37	90	0.0	N	79	8				
20	39	3 P	34	5 A	36.5	90	0.0	N	12	6	7 P	8 P	0.02	
21	38	12 N	33	7 A	35.5	89	0.0	NE	42	10	7 A	12 P	0.53	
22	45	2 P	34	2 A	39.5	86	3.9	N	298	32	0 A	5 A	0.33	
23	36	3 P	26	12 P	31	70	6.2	N	432	32				
24	39	4 P	23	7 A	31	58	1.9	N	471	32	11 A	2 P		T
25	51	3 P	32	0 A	41.5	54	7.9	N	297	28				
26	53	3 P	29	7 A	41	79	0.0	W	35	3	2 P	3 P	T	
27	56	1 P	34	8 A	45	76	0.2	NW	118	28	0 A	6 A	.02	
28	36	2 P	32	12 P	34	70	1.9	N	187	18				
29														
30														
31														

* Based on least time required to blow one mile.

Marius P. Vavoudes, *Observer*

MONTHLY SUMMARY

FEBRUARY, 1951		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.850, 10th	30.63	31.05, 1920
Minimum	29.200, 7th	29.24	28.56, 1895
Mean semi-daily	30.161	30.04	
Range	1.650	1.38	1.89, '00, '08; .88, '13, '31
Air Temperature, in Degrees F.			
Highest	56, 27th	50.5	65.0, 1930
Lowest	—6, 10th	—7.4	—23, 1943
Mean	29.6	23.7	32.6, 1890; 11.6, 1934
Range	62	58	
Highest mean daily	45, 27th		
Lowest mean daily	7, 8th		
Mean maximum	38.3	32.8	
Mean minimum	21.0	14.5	
Greatest daily range	38, 1st		
Least daily range	2, 8th		
Degree-days of heating load for month	990	1166.7	
Degree-days cumulative for season	4428		
Precipitation, in inches			
Precipitation	4.61	3.19	8.12, 1900; 0.62, 1901
Snow	6.0	13.99	48.75, 1893; 0.50, 1937
Maximum precip. in 24 hrs.	1.33, 7th		
Number of days with .01 or more	11	10	15, '93, 1920; 4, 1901
Wind, in miles			
Total movement	4088	4776	6445, 1896; 3402, 1949
Greatest daily movement	471, 24th		
Least daily movement	2, 5th		
Mean hourly velocity	6.1	7.1	
Maximum velocity	32, 22nd, 23rd, 24th	31.7	50, 1946
Wind, direction			
Prevailing direction	NNW	WNW	
North, days	13		
Northeast, days	1		
East, days	0		
Southeast, days	0		
South, days	5		
Southwest, days	2		
West, days	1		
Northwest, days	6		
Weather			
Mean relative humidity, percent	79.0	66.6	
Mean cloudiness, percent	55.4	50.9	66, '90, '27; 31, 1905
Number of clear days	8	10	19, 1941; 2, 1927
Number of fair days	5	8	16, 1920; 2, 1936
Number of cloudy days	15	10	16, 1894; 2, 1920
Number of hours bright sunshine	99.0	158	221, 1924; 110, '27, '38
Percent of possible hours of bright sunshine	33.5	53.4	
Thunder and lightning			
First Frost			

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1950.

REMARKS

The weather for the month was generally warm except for a cold period on the 8th, 9th, and 10th. The last 11 days of the month were above 30 degrees mean daily and 8 of the 11 were above 35 degrees mean daily. The mean daily for the month was 29.6 degrees. The warm weather during the month gave a total of 990 degree days for the month, as compared to a normal of 1166.7. The cumulative degree days to the end of the month was 4428 which is only slightly above that of 1950 which was 4383. Only 6 inches of snow fell during the month, as compared to a normal of 13.99, but precipitation for the month was 4.61 inches, as compared to a normal of 3.19. Considerable cloudiness occurred throughout the month and the hours of bright sunshine were 99 which was far below the normal of 158. The mean relative humidity of 79 per cent was also far above the normal of 66.6.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 747 March 1951

Meteorological Observations

FOR

MARCH

1951

EARLE F. COX

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	26	3 P	22	12 P	24	82	0.0	E	136	20	8 A	12 P	.18	2.0
2	39	2 P	22	0 A	30.5	79	5.0	NW	119	20				
3	34	1 P	23	8 A	28.5	70	5.1	E	138	17	7 P	12 P	.04	.5
4	34	8 P	27	6 A	30.5	94	0.0	N	49	8	0 A	5 P	.50	3.0
5	41	5 P	28	5 A	34.5	84	9.7	N	88	13				
6	50	4 P	22	7 A	36	72	7.8	SW	56	9				
7	51	1 P	34	7 A	42.5	88	0.6	W	95	10	2 P	4 P	.03	
8	42	4 P	31	6 A	36.5	65	0.0	NW	158	17				
9	34	12 N	23	12 P	28.5	69	4.5	N	149	22				
10	36	2 P	20	7 A	28	58	10.2	N	371	32				
11	45	3 P	25	3 A	35	73	5.0	N	382	32				
12	54	4 P	35	6 A	44.5	69	9.5	N	217	17				
13	42	2 P	35	6 A	38.5	79	0.0	E	131	11				
14	42	4 P	37	0 A	39.5	89	0.0	E	179	17	8 A	12 P	.55	
15	39	2 P	36	0 A	37.5	89	0.0	S	99	10	0 A	4 A	.02	
16	48	1 P	32	6 A	40	82	0.0	W	95	13				
17	44	4 P	30	4 A	37	82	0.0	N	107	14				
18	47	4 P	29	6 A	38	67	0.0	N	143	18				
19	45	4 P	32	5 A	38.5	79	0.0	SE	135	15	11 P	12 P	.02	
20	43	3 P	29	12 P	36	79	5.0	N	243	25	0 A	9 A	.98	
21	50	3 P	26	7 A	38	67	6.2	S	129	18				
22	34	5 P	21	12 P	27.5	87	7.0	N	260	25	2 A	11 A	.17	1.5
23	48	4 P	19	3 A	33.5	74	2.5	S	115	15	5 A	12 P	.17	1.0
24	56	2 P	36	6 A	46	83	2.0	W	91	22	0 A	12 N	.25	
25	41	2 P	29	6 A	35	59	8.5	NW	311	40				
26	33	4 P	23	6 A	28	57	10	NW	274	28				
27	50	5 P	17	6 A	33.5	63	9	S	83	9				
28	65	4 P	34	7 A	49.5	69	7	SW	97	9				
29	46	8 P	41	7 A	43.5	96	0.0	NW	31	9	6 A	12 P	.45	
30	51	2 P	41	3 A	46	89	0.0	SE	118	20	0 A	12 P	1.62	
31	55	2 P	40	12 P	47.5	81	4.5	NW	219	20	0 A	6 A	.15	

* Based on least time required to blow one mile.

Marius P. Vavoudes, *Observer*

MONTHLY SUMMARY

MARCH, 1951		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.491, 3rd	30.57	31.05, 1943
Minimum	29. 518, 24th	29.24	28.47, 1914
Mean semi-daily	30.076	30.04	
Range	0.973	1.34	2.10, 1914; 0.85, 1915
Air Temperature, in Degrees F.			
Highest	65, 28th	63.8	85, 1929
Lowest	17, 27th	6.1	—9, 1950
Mean	36.5	34.4	
Range	48	57.6	
Highest mean daily	46, 30th, 31st		
Lowest mean daily	24, 1st	43.2	
Mean maximum	44.1	25.4	
Mean minimum	29.0		
Greatest daily range	33, 27th		
Least daily range	3, 15th		
Degree-days of heating load for month	883.0	949	
Degree-days cumulative for season	5321	5876	
Precipitation, in inches			
Precipitation	5.13	3.70	7.89, 1942; 0.12, 1915
Snow	8.0	7.47	27, 1899; 0, 1921
Maximum precip. in 24 hrs.	1.62, 30th		
Number of days with .01 or more	14	11	17, 1890, 1913, 1936; 3, 1915
Wind, in miles			
Total movement	4818	5944	8182, 1896; 3006, 1905
Greatest daily movement	382, 11th		
Least daily movement	31, 29th		
Mean hourly velocity	6.5	7.7	
Maximum velocity	32, 10th, 11th	31.2	48, 1932, 1939, 1941, 1942
Wind, direction			
Prevailing direction	NNW	WNW	
North, days	10		
Northeast, days	0		
East, days	4		
Southeast, days	2		
South, days	4		
Southwest, days	2		
West, days	3		
Northwest, days	6		
Weather			
Mean relative humidity, percent	76.6	64.2	
Mean cloudiness, percent	58.9	51.8	68, 1901; 27, 1915
Number of clear days	6	11	22, 1924; 3, 1901
Number of fair days	10	10	17, 1900; 1, 1943
Number of cloudy days	15	10	21, 1901; 1, 1915
Number of hours bright sunshine	119.1	199	292, 1924; 93, 1901
Percent of possible hours of bright sunshine	32.2	53.6	
Thunder	16th		
....			
First Frost			

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1950.

REMARKS

The month of March was generally mild with a mean daily of 36.5 degrees, as compared to a normal of 34.4 degrees. One abrupt temperature change occurred during the month when the temperature rose from a low of 17 degrees on one day to a high of 65 degrees on the following day. These two figures were the minimum and maximum for the month. The accumulated degree days for the season were 5321, as compared to 4917 in 1949 and 5468 in 1950. Rainfall of 1.62 inches on March 30 gave a precipitation for the month of 5.13 inches, as compared to a normal of 3.70 inches. As with previous months, the mean relative humidity contained far above normal with a reading of 76.6 per cent, as compared to a normal of 64.2 per cent.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 748 April 1951

Meteorological Observations

FOR

APRIL

1951

EARLE F. COX

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 ft. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean									
	Degrees	Time	Degrees	Time				Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	63	4 P	31	6 A	47	68	6.5	W	48	11				
2	47	3 P	42	8 A	44.5	83	0.0	W	63	13	7 A	12 P	.12	
3	44	4 P	36	8 A	40	87	0.5	NW	180	28	0 A	3 P	1.64	
4	51	2 P	33	4 A	42	70	3.0	SW	117	11				
5	49	3 P	30	6 A	39.5	73	6.0	NW	74	14				
6	61	3 P	36	6 A	48.5	63	11.0	N	183	22				
7	65	5 P	34	6 A	49.5	69	9.5	N	147	20				
8	55	5 P	46	6 A	50.5	80	0.2	NE	101	13				
9	65	4 P	38	6 A	46.5	73	7.1	NE	93	11				
10	68	4 P	39	6 A	53.5	81	5.0	W	65	18	5 P	12 P	.23	
11	52	3 P	43	4 A	47.5	87	0.2	NW	107	20	10 A	1 P	.21	
12	67	4 P	35	6 A	51	75	8.5	SE	102	22	10 P	12 P	.05	
13	60	4 P	42	4 A	51	72	3.0	S	151	13	0 A	4 A	.37	
14	57	12 N	42	6 A	49.5	69	2.2	SW	189	20	7 A	8 A	.01	
15	63	1 P	40	5 A	51.5	72	1.0	SW	250	40	9 A	10 A	.01	
16	57	1 P	36	6 A	46.5	74	5.5	SW	151	15	4 P	12 P	.06	
17	48	2 P	34	6 A	41	70	8.9	NW	216	28				
18	52	2 P	32	5 A	42	69	10.0	W	136	20				
19	62	3 P	39	0 A	50.5	79	2.5	S	168	18	6 A	5 P	.07	
20	57	4 P	35	5 A	46	60	11.5	N	225	20				
21	58	5 P	32	6 A	45	61	12.0	N	95	13				
22	59	12 N	33	5 A	46	73	2.1	S	143	18	10 P	12 P	.04	
23	55	4 P	41	12 P	48	70	9.1	NW	293	22	0 A	8 A	.65	
24	64	2 P	30	6 A	47	62	7.7	SW	79	13				
25	52	5 P	45	6 A	48.5	93	0.0	SE	76	12	6 A	5 P	.14	
26	67	11 A	44	12 P	55.5	81	4.3	NW	280	32	2 A	4 A	.03	
27	68	5 P	36	6 A	52	70	11.1	NW	60	13				
28	69	1 P	40	5 A	54.5	68	7.0	SE	226	20				
29	71	2 P	47	4 A	59	85	2.2	S	165	22				
30	68	2 P	46	6 A	57	40	12.1	N	239	25				

* Based on least time required to blow one mile.

Marius P. Vavoudes, *Observer*

MONTHLY SUMMARY

APRIL, 1951		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.395, 22nd	30.48	30.71, 1911
Minimum	29.230, 15th	29.38	28.98, 1943
Mean semi-daily	29.899	29.99	
Range	1.165	1.11	1.52, 1930; 0.65, 1950
Air Temperature, in Degrees F.			
Highest	71, 29th	79.4	90, 1941
Lowest	30, 5th, 24th	22.0	8.5, 1923
Mean	48.4	45.7	52, 1921; 41, 1943
Range	41	57.4	
Highest mean daily	59, 29th		
Lowest mean daily	39.5, 5th	56.8	
Mean maximum	59.1	34.8	
Mean minimum	37.9		
Greatest daily range	34, 24th		
Least daily range	7, 2nd		
Degree-days of heating load for month	500	579	
Degree-days cumulative for season	5821	6455	
Precipitation, in inches			
Precipitation	3.63	3.35	6.89, 1929; .55, 1941
Snow		2.17	11, 1891; 0, 1910, 1934
Maximum precip. in 24 hrs.	1.64, 3rd		
Number of days with .01 or more	14	11	18, 1909; 3,1892
Wind, in miles			
Total movement	4422	5404	8208, 1908; 3853, 1917
Greatest daily movement	293, 23rd		
Least daily movement	48, 1st		
Mean hourly velocity	6.1	7.5	
Maximum velocity	40, 15th	31.4	40, 1935, 1938, 1940, 1945
Wind, direction			
Prevailing direction	W	WNW	
North, days	5		
Northeast, days	2		
East, days	0		
Southeast, days	3		
South, days	4		
Southwest, days	5		
West, days	4		
Northwest, days	7		
Weather			
Mean relative humidity, percent	72.6	61.6	
Mean cloudiness, percent	50.0	51.8	75, 1901; 34, 1925, 1927
Number of clear days	7	11	23, 1941; 1, 1949
Number of fair days	10	9	18, 1915; 2, 1894, 1901
Number of cloudy days	13	10	22, 1901; 1, 1941
Number of hours bright sunshine	169.7	220	329, 1941; 103, 1901
Percent of possible hours of bright sunshine	42.3	54.7	
Thunder and Lightning	10th		
Last Snow		Apr. 15	Mar. 14, 1910; May 11, 1907.'45
First Frost			

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1950.

REMARKS

The mean daily temperature for the month of April was 48.4 degrees as compared to a normal of 45.7 degrees. There were 500 degree days for the month and the normal is 579. The cumulative degree days for the season of 5821 is far below the normal of 6455.

The precipitation for the month was about normal with a total of 3.63 inches. The normal for the month is 3.35 inches. No snow fell during the month, while normally a snowfall of 2.71 inches would occur.

As with previous months, the mean relative humidity continued far above normal. The reading was 72.6 per cent as compared to a normal of 61.6 per cent. Considerable cloudy and foggy weather occurred during the month. The hours of bright sunshine were only 169.7 as compared to a normal of 220. Foggy weather occurred nine days during the month when the reading was taken at 8 a.m.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 749 May 1951

Meteorological Observations

FOR

MAY

1951

EARLE F. COX

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	76	4 P	34	6 A	55	49	11.4	N	41	13				
2	76	2 P	38	6 A	57	49	8.8	N	213	40				
3	64	2 P	32	6 A	48	45	9.1	N	117	20				
4	61	5 P	32	6 A	46.5	49	8.9	NW	57	8				
5	68	6 P	32	6 A	50	57	12.0	NW	79	11				
6	68	4 P	35	7 A	51.5	51	7.5	NW	65	11				
7	63	12 N	47	7 A	55	63	4.2	NW	162	22				
8	69	5 P	48	0 A	58.5	55	5.9	NW	175	22				
9	80	5 P	52	7 A	66	58	11.0	W	185	20	6 P	8 P	.02	
10	65	3 P	44	5 A	54.5	57	10.5	N	94	10				
11	47	1 P	38	2 A	42.5	91	0.0	NE	43	8	6 A	7 P	.87	
12	61	2 P	43	6 A	52	93	2.0	SW	108	14	0 A	3 A	.32	
13	61	5 P	36	3 A	48.5	65	12.5	N	124	18				
14	74	4 P	31	6 A	52.5	66	10.9	SW	45	8				
15	86	4 P	44	6 A	65	70	10.0	SW	59	13				
16	87	5 P	50	6 A	68.5	70	12.0	W	82	17				
17	75	1 P	54	5 A	64.5	78	7.9	E	136	25	5 P	6 P	0.1	
18	67	3 P	47	6 A	57	78	9.5	E	141	12				
19	78	2 P	35	6 A	56.5	77	11.0	SW	42	6				
20	76	4 P	60	5 A	68	93	0.6	SW	42	8				
21	81	4 P	64	4 A	72.5	86	2.0	S	93	12	2 A	4 A	.11	
22	84	4 P	62	5 A	73	82	2.5	S	84	9				
23	73	12 N	62	4 A	67.5	89	0.6	N	134	13	4 A	12 P	.12	
24	56	4 P	50	7 A	53	96	0.3	N	228	17	0 A	12 N	.79	
25	75	6 P	48	6 A	61.5	74	9.0	N	190	20				
26	82	3 P	45	6 A	63.5	75	5.5	S	67	8				
27	69	1 P	53	5 A	61	95	0.0	SE	96	17	3 P	6 P	.71	
28	75	2 P	55	6 A	65	83	7.9	S	66	9	3 A	4 A	.01	
29	71	3 P	54	2 A	62.5	91	3.0	NE	79	9				
30	74	4 P	50	5 A	62	78	8.0	N	105	17				
31	82	4 P	50	4 A	66	76	7.0	N	104	12				

* Based on least time required to blow one mile.

MARIUS P. VAVOUDES, *Observer*

MONTHLY SUMMARY

MAY, 1951		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.487	30.39	30.62, 1936
Minimum	29.436	29.51	29.10, 1938
Mean semi-daily	29.890	29.96	
Range	1.051	0.88	
Air Temperature, in Degrees F.			
Highest	87, 16th	86.1	94.5, 1896, 1911
Lowest	31, 14th	31.2	24.0, 1900
Mean	58.9	57.1	
Range	56	54.9	
Highest mean daily	73, 22nd		
Lowest mean daily	42.5, 11th		
Mean maximum	71.7		
Mean minimum	46.0		
Greatest daily range	43, 14th, 19th		
Least daily range	6, 24th		
Degree-days of heating load for month	211	245	
Degree-days cumulative for season	6032	6700	
Precipitation, in inches			
Precipitation	2.96	3.60	7.44, 1931; .48, 1903
Snow			
Maximum precip. in 24 hrs.	0.87, 11th		
Number of days with .01 or more	9	12	20, 1901, 1945; 5, 1903
Wind, in miles			
Total movement	3256	4504	5946, 1907; 2180, 1894
Greatest daily movement	228, 24th		
Least daily movement	41, 1st		
Mean hourly velocity	4.4	6.1	
Maximum velocity	40, 2nd	28.8	48, 1950
Wind, direction			
Prevailing direction	NW	W	
North, days	10		
Northeast, days	2		
East, days	2		
Southeast, days	1		
South, days	4		
Southwest, days	5		
West, days	2		
Northwest, days	5		
Weather			
Mean relative humidity, percent	72.2	60.7	
Mean cloudiness, percent	37.8	52.1	72, 1948; 30, 1923
Number of clear days	9	11	21, 1944; 0, 1927
Number of fair days	12	11	18, 1949; 5, 1923
Number of cloudy days	10	9	20, 1927; 2, 1941
Number of hours bright sunshine	211.5	252	350, 1944; 137, 1927
Percent of possible hours of bright sunshine	46.8	55.6	
Thunder and Lightning	9th		
Last Frost	14th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1950.

REMARKS

The degree days for the month of May were slightly below normal, the reading being 211 as compared to a normal of 245. This brought the cumulative degree days for the season to a total of 6,032, as compared to a normal of 6.700. This was somewhat higher than the mild winter of 1948-1949 and is slightly below the cumulative degree days for the winter of 1949-1950. The cumulative degree days for the season to the end of May 1949 were 5,551 and the cumulative degree days for the heating season to the end of May 1950 were 6,335.

In general the weather during the month was mild and dry. The last frost for the month occurred on May 14. The precipitation was below normal with a reading of 2.96 inches as compared to a normal of 3.60 inches. Following the rainfall of .14 inches on April 25 no appreciable amount of rain fell until May 11. A total of 1.19 inches fell on May 11 and 12. There was very little rainfall following this until May 24 and 27 when a total of 1.50 inches was recorded.

Although the rainfall was below normal, the relative humidity continued to be far above normal as it had in preceding months. The mean relative humidity for the month was 72.2 per cent as compared to a normal of 60.7 per cent. The number of hours of bright sunshine of 211.5 was low as compared to the normal of 252 hours.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 750 June 1951

Meteorological Observations

FOR

JUNE

1951

EARLE F. COX

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	88	3 P	53	5 A	70.5	73	4.1	SW	64	20				
2	78	1 P	65	4 A	71.5	89	0.0	W	85	9				
3	67	5 P	60	5 A	63.5	95	0.0	S	70	7				
4	80	3 P	58	4 A	69	84	1.7	S	76	22				
5	80	4 P	61	6 A	70.5	73	6.6	N	127	17				
6	77	3 P	48	5 A	62.5	62	9.3	SW	38	5				
7	70	1 P	49	5 A	59 5	64	12.4	N	105	28				
8	74	1 P	39	4 A	56.5	59	11.2	SW	63	13				
9	77	3 P	47	5 A	62	69	9.2	NE	78	20				
10	67	1 P	53	4 A	60	61	5.5	N	135	28				
11	68	2 P	48	5 A	58	60	2.2	N	118	25				
12	76	5 P	47	5 A	61.5	61	10.4	N	73	11				
13	77	1 P	49	4 A	63	78	5.9	SE	98	13	6 P	9 P	0.06	
14	55	1 P	51	5 A	53	96	0.0	NW	87	14	1 A	8 P	1.42	
15	56	1 P	48	5 A	52	94	0 1	W	156	17	0 A 3 P	6 A 8 P	0.33 0.27	
16	74	7 P	49	4 A	61.5	88	2.4	N	68	9				
17	80	4 P	55	5 A	67.5	91	2.0	SE	69	11	9 A	10 A	0.01	
18	83	1 P	58	5 A	70.5	77	4.2	SE	69	10				
19	88	2 P	58	6 A	73	72	6.2	S	73	8				
20	83	4 P	60	5 A	71.5	74	8.0	S	112	10				
21	82	4 P	66	4 A	74	82	6.4	S	160	12	5 P	6 P	0.01	
22	82	4 P	56	5 A	69	73	10.1	SE	88	13				
23	76	6 P	65	6 A	70.5	94	1.4	SE	134	9	10 A 7 P	1 P 8 P	0.07 0.08	
24	87	4 P	58	5 A	82.5	74	11.2	SW	59	14				
25	84	2 P	67	5 A	75.5	69	12.0	NW	210	25	1 A	4 A	0.17	
26	78	5 P	50	5 A	64	59	13.8	NW	62	10				
27	82	5 P	62	3 A	72	88	6.1	S	85	14			T	
28	81	2 P	59	6 A	70	77	12.3	SE	75	9				
29	72	11 A	61	5 A	66.5	89	1.1	S	92	18	12 N	3 P	0.61	
30	73	12 N	60	4 A	66.5	91	2.7	S	74	9	3 P	4 P	0.01	

* Based on least time required to blow one mile.

WALTER S. FOSTER, *Observer*

MONTHLY SUMMARY

JUNE 1951		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.103, 12th	30.30	30.70, 1947
Minimum	29.738. 27th	29.55	29.24, 1902
Mean semi-daily	29.931	29.95	
Range	.365	0.75	
Air Temperature, in Degrees F.			
Highest	88, 1st, 19th	91.2	101, 1919
Lowest	39, 8th	40.0	34, 1891
Mean	77.2	65.7	
Range	49	51.3	
Highest mean daily	82.5, 24th		
Lowest mean daily	52, 15th		
Mean maximum	76.5		
Mean minimum	55.3		
Greatest daily range	35, 1st, 8th		
Least daily range	4, 14th		
Degree-days of heating load for month	68		
Degree-days cumulative for season	6100		
Precipitation, in inches			
Precipitation	3.04	3.75	9.68, 1922; 0.76, 1908
Snow	—		
Maximum precip. in 24 hrs.	1.42, 14th		
Number of days with .01 or more	9	11	17, 1922, 1945; 4, 1908
Wind, in miles			
Total movement	2803	3585	4571, 1908; 1409, 1906
Greatest daily movement	210 25th		
Least daily movement	38, 6th		
Mean hourly velocity	3.9	5.0	
Maximum velocity	28, 7th, 10th	24.6	48. 1939
Wind. direction			
Prevailing direction	SSW	WSW	
North, days	6		
Northeast, days	1		
East, days	0		
Southeast, days	6		
South, days	8		
Southwest, days	4		
West, days	2		
Northwest, days	3		
Weather			
Mean relative humidity, percent	77.2	66.9	
Mean cloudiness, percent	59.3	51.1	71. 1903; 28, 1908
Number of clear days	6	10	22, 1908, 1941, 1943; 0, 1949
Number of fair days	10	12	23, 1912; 3, 1941
Number of cloudy days	14	8	22, 1903; 1, 1923
Number of hours bright sunshine	178.5	257	365, 1947; 102, 1903
Percent of possible hours of bright sunshine	39.0	54.0	
Thunder and Lightning			
Last Frost			

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1950.

REMARKS

The dry period, which began May 28, extended until June 13 before any rainfall occurred. Following this period of drought rainfall occurred on nine of the eighteen remaining days in June. Total precipitation for the month was 3.04 inches as compared to a normal of 3.75 inches.

Cloudy weather prevailed throughout the month. Bright sunshine occurred only 39 per cent of the possible hours. The normal for the month is 54 per cent. As with preceding months, the relative humidity continued high. The mean for the month was 77.2 per cent as compared to a normal of 66. 9per cent.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 751 July 1951

Meteorological Observations

FOR

JULY

1951

EARLE F. COX

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 ft. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	74	3 P	64	6 A	69	89	4.8	NW	80	7	8 A	10 A	0.10	
2	80	5 P	53	5 A	66.5	70	4.9	W	101	12				
3	84	6 P	51	5 A	67.5	65	10.1	W	66	15				
4	83	2 P	58	4 A	70.5	78	9.2	S	95	14				
5	83	12 N	69	3 A	76	81	7.8	S	142	20	1 A 3 P 7 P	2 A 4 P 12 P	.09 .09 .24	
6	79	3 P	56	3 A	67.5	69	7.3	NW	157	22				
7	89	3 P	48	5 A	68.5	63	12.0	W	41	5				
8	87	3 P	57	5 A	72	69	10.7	S	76	8				
9	85	3 P	62	4 A	73.5	65	11.4	S	155	13				
10	87	2 P	63	3 A	75	82	7.7	S	130	8	5 P	6 P	.08	
11	88	3 P	63	4 A	75.5	82	8.9	SE	70	10	5 P	6 P	.09	
12	83	2 P	67	3 A	75	95	0.	SW	38	5	4 A 9 A	5 A 8 P	.01 1.93	
13	82	4 P	65	3 A	73.5	73	10.2	N	60	11				
14	86	5 P	60	4 A	73	67	10.1	W	42	5				
15	88	4 P	57	5 A	72.5	67	12.8	W	45	7				
16	91	4 P	61	4 A	76	75	10.0	S	76	10				
17	84	1 P	65	5 A	74.5	90	1.2	N	79	7	5 A 3 P	9 A 8 P	.32 .40	
18	77	1 P	62	5 A	69.5	78	6.5	SE	76	7				
19	75	11 A	65	5 A	70	89	2.0	SW	64	20	6 A 12 N	8 A 7 P	.29 .51	
20	76	3 P	55	4 A	65.5	64	12.5	NW	176	22				
21	80	3 P	50	4 A	65	66	12.0	S	91	12				
22	80	3 P	66	0 A	73	84	1.5	S	142	12				
23	86	3 P	69	4 A	77.5	73	8.2	NW	71	10				
24	84	4 P	63	6 A	73.5	73	10.4	W	46	6				
25	87	3 P	55	6 A	71	67	11.6	SW	63	7				
26	91	3 P	58	5 A	74.5	74	9.7	W	88	10				
27	88	3 P	67	5 A	77.5	70	9.1	N	64	10	9 P	12 P	.01	
28	76	2 P	66	3 A	71	87	0.1	SE	98	8				
29	78	4 P	63	5 A	70.5	88	0	N	61	5				
30	89	3 P	67	3 A	78	78	7.4	W	57	8				
31	90	3 P	66	4 A	78	85	6.7	SE	59	7				

* Based on least time required to blow one mile.

WALTER S. FOSTER, *Observer*

MONTHLY SUMMARY

JULY 1951		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.119, 18th	30.27	30.50, 1892
Minimum	29.436, 5th	29.59	29.27, 1932
Mean semi-daily	29.962	29.96	
Range	0.683	0.68	0.97, 1892; 0.47, 1938
Air Temperature, in Degrees F.			
Highest	91, 16th, 26th	93.9	104, 1911
Lowest	48, 7th	46.4	40, 1890, 1898
Mean	72.3	70.8	66.3, 1891; 76.0, 1949
Range	43	47.7	
Highest mean daily	78, 30th, 31st		
Lowest mean daily	65, 21st		
Mean maximum	83.5		
Mean minimum	61.0		
Greatest daily range	41, 7th		
Least daily range	10, 28th		
Degree-days of heating load for month	—		
Degree-days cumulative for season	—		
Precipitation, in inches			
Precipitation	4.16	4.10	14.51, 1897; 0.70, 1929
Snow	—		
Maximum precip. in 24 hrs.	1.94, 12th		
Number of days with .01 or more	8	11	20, 1915; 4, 1924
Wind, in miles			
Total movement	2609	3422	5097, 1909; 1109, 1894
Greatest daily movement	157, 6th		
Least daily movement	38, 12th		
Mean hourly velocity	3.5	4.6	
Maximum velocity	22, 6th, 20th	28.7	44, 1936
Wind, direction			
Prevailing direction	SW	SW	
North, days	4		
Northeast, days	0		
East, days	0		
Southeast, days	4		
South, days	8		
Southwest, days	3		
West, days	8		
Northwest, days	4		
Weather			
Mean relative humidity, percent	77.1	68.4	
Mean cloudiness, percent	60.3	50.9	70, 1943; 31, 1924
Number of clear days	8	10	22, 1923; 0, 1915
Number of fair days	17	14	24, 1909, 1921; 4, 1946
Number of cloudy days	6	7	18, 1889; 0, 1910
Number of hours bright sunshine	236.8	268	371, 1910; 180, 1931
Percent of possible hours of bright sunshine	51.1	58	
Thunder and lightning	10th, 16th, 19th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1950.

REMARKS

The July weather was near normal in nearly all respects. No extremes were recorded but the high mean relative humidity of previous months was continued as was also the more than normal amount of cloudiness. The mean relative humidity of 77.1 was considerably above the normal of 68.4. The mean cloudiness at 60.3 per cent was also above the normal of 50.9 The per cent of possible hours of bright sunshine recorded at 51.1 was below the normal of 58.

The readings for air temperature and rainfall were close to normal. The rainfall was slightly above normal for the month. It has been above normal for every month except June during 1951. This has resulted in an accumulated precipitation of 26.8 inches to the end of July as compared to a normal of 25.3.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 752 August 1951

Meteorological Observations

FOR

AUGUST

1951

EARLE F. COX

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	84	5 P	56	12 P	70	85	4.6	SE	131	20	9 A	12 N	.05	
2	84	4 P	48	5 A	66	73	13.1	NW	77	8				
3	72	2 P	57	4 A	64.5	81	2.7	S	113	17	7 P	8 P	.14	
4	74	4 P	55	4 A	64.5	70	11.4	N	73	7				
5	74	4 P	48	4 A	61	71	12.7	N	74	12				
6	76	5 P	45	6 A	60.5	70	12.5	NE	48	11				
7	79	1 P	48	5 A	63.5	65	9.4	S	66	12				
8	67	3 P	59	5 A	63	90	0	E	67	9	2 A	11 A	.56	
9	84	3 P	58	5 A	71	87	9.8	SW	71	9				
10	85	5 P	71	4 A	78	86	4.1	SW	70	7	9 A	10 A	.07	
11	88	4 P	68	6 A	78	75	10.0	NW	73	6				
12	81	2 P	62	6 A	71.5	80	2.5	N	39	9	2 P	6 P	.04	
13	86	4 P	65	5 A	75.5	79	9.6	NW	87	12				
14	87	4 P	57	5 A	72	79	10.3	S	59	7				
15	87	1 P	69	3 A	78	88	4.6	SE	97	10	4 P	6 P	.03	
16	75	2 P	63	12 P	69	92	0.3	N	62	32	6 P	11 P	1.11	
17	77	4 P	62	7 A	69.5	92	0	N	59	13	6 P	7 P	.87	
18	73	6 P	60	6 A	66.5	79	10.2	NW	70	11				
19	79	5 P	50	6 A	64.5	84	11.2	NW	28	6				
20	78	3 P	52	6 A	65	94	6.2	NW	37	14	10 A	5 P	.24	
21	72	5 P	59	0 A	65.5	95	0	S	64	13	12 N	5 P	.19	
22	77	11 A	64	6 A	70.5	64	9.6	NW	177	18				
23	72	4 P	50	5 A	61	80	11.0	NW	70	11				
24	72	12 N	49	5 A	60.5	88	8.8	N	56	10				
25	75	2 P	56	5 A	65.5	87	4.9	NW	61	11	9 A	6 P	.26	
26	77	6 P	55	2 A	66	86	8.1	NW	65	9				
27	76	6 P	57	5 A	66.5	87	7.6	SW	33	4				
28	82	4 P	59	2 A	70.5	89	6.8	SW	39	10				
29	87	4 P	59	5 A	73	87	7.4	SW	39	6				
30	90	3 P	59	5 A	74.5	84	8.3	SW	36	3				
31	89	2 P	62	6 A	75.5	85	7.3	S	92	13				

* Based on least time required to blow one mile.

WALTER S. FOSTER, *Observer*

MONTHLY SUMMARY

AUGUST 1951		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.186, 24th	30.32	30.50, 1934
Minimum	29.700, 3rd	29.61	28.87, 1930
Mean semi-daily	30.044	30.00	
Rang	.486	0.71	
Air Temperature, in Degrees F.			
Highest	90, 30th	91.6	100, 1918, 1948
Lowest	45, 6th	43.4	34, 1940
Mean	68.4	68.6	62.4, 1903
Range	45	48.1	
Highest mean daily	78, 10th, 11th, 15th		
Lowest mean daily	60.5, 6th, 24th		
Mean maximum	79.3		
Mean minimum	57.8		
Greatest daily range	36, 2nd		
Least daily range	8, 8th		
Degree-days of heating load for month	—		
Degree-days cumulative for season	—		
Precipitation, in inches			
Precipitation	3.56	4.08	8.40, 1948; .31, 1894
Snow	—		
Maximum precip. in 24 hrs.	1.11, 16th		
Number of days with .01 or more	11	11	16, 1892, 1933; 4, 1899
Wind, in miles			
Total movement	2133	3127	4,217, 1910;1,920, 1894
Greatest daily movement	177, 22nd		
Least daily movement	28. 19th		
Mean hourly velocity	2.86	4.2	
Maximum velocity	32, 16th	22.7	40, 1941
Wind, direction			
Prevailing direction	WNW	SW	
North, days	6		
Northeast, days	1		
East, days	1		
Southeast, days	2		
South, days	5		
Southwest, days	6		
West, days	0		
Northwest, days	10		
Weather			
Mean relative humidity, percent	82.3	70.2	
Mean cloudiness, percent	56.0	49.7	67, 1901, 1946; 27, 1923
Number of clear days	10	9	23, 1941; 0, 1915, 1929
Number of fair days	14	13	25, 1912; 3, 1939
Number of cloudy days	7	9	18, 1901, 1928; 2, 1910, 1923
Number of hours bright sunshine	225.0	237	332, 1941; 152, 1915, 1929
Percent of possible hours of bright sunshine	52.2	55.2	
Thunder and lightning	3rd, 10th 16th, 17th 20th, 25th		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1950.

REMARKS

The month of August was near normal in most respects. The mean daily temperature was 68.4 while the normal for this month is 68.6. The highest for the month was 90.0 as compared to a normal of 91.6.

The precipitation during the month was 3.56 inches which compares to a normal 4.08. Of the total amount during the month 1.98 inches fell on the 16th and 17th. There were eleven days during the month when a total of 0.01 of an inch or more fell. This is equal to the number of days during the month on which we can expect 0.01 of an inch or more of rain. While the precipitation during the month was below normal, the accumulated precipitation for the year is still approximately one inch above the normal.

The mean relative humidity for the month was 82.3 which compares to a normal of 70.2 for the month. The mean relative humidity has been running far above normal and this is still the case during the month of August. In spite of the high mean relative humidity, the cloudiness and hours of bright sunshine for the month were about normal.

The total wind movement for the month was 2133 miles which compares to a normal of 3127. There were no wind storms during the month and the maximum velocity was 32 miles per hour which was reached on the 16th.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 753 September 1951

Meteorological Observations

FOR

SEPTEMBER

1951

EARLE F. COX

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hr.*	Began	Ended	Water	Degree Days
1	61	8 A	55	12 P	58	89	0.0	N	113	9	5 A	6 A	.02	7
2	58	2 P	54	6 A	56	94	0.0	N	55	7	1 A	11 P	.87	9
3	67	3 P	54	6 A	60.5	92	0.0	W	53	8				4.5
4	76	2 P	50	5 A	63	75	11.8	NW	100	12				2
5	78	1 P	46	5 A	62	79	10.4	W	20	4				3
6	66	2 P	50	5 A	58	91	2.7	S	61	12	12 N	4 P	.10	7
7	78	2 P	61	5 A	69.5	82	8.2	NW	123	12				
8	72	4 P	49	6 A	60.5	66	12.1	NW	141	12				4.5
9	79	4 P	43	6 A	61	75	11.3	S	42	7				4
10	82	3 P	46	6 A	64	74	10.3	S	54	7				1
11	71	5 P	59	3 A	65	91	0.5	SE	102	7				
12	85	3 P	61	6 A	73	88	5.9	SE	57	7				
13	81	3 P	64	7 A	72.5	83	4.8	SE	99	9				
14	84	1 P	67	5 A	75.5	85	6.0	SE	160	13				
15	67	6 P	65	8 A	66	94	0.5	NW	101	13	6 A	10 P	1.03	
16	79	4 P	52	6 A	65.5	89	7.0	W	51	7				
17	74	3 P	54	7 A	64	82	10.8	N	53	8				1
18	73	4 P	50	7 A	61.5	85	8.8	W	39	8				3.5
19	77	4 P	47	7 A	62	80	9.2	NW	66	6				3
20	78	5 P	46	7 A	62	88	10.0	NE	25	7				3
21	82	3 P	56	3 A	69	87	6.0	W	67	10				
22	80	2 P	59	6 A	69.5	75	8.2	S	178	12				
23	74	2 P	50	12 P	62	81	5.0	S	196	18	4 A	8 A	.05	
24	74	1 P	43	6 A	58.5	74	9.0	SW	52	7				6.5
25	69	10 A	47	6 A	58	88	5.0	S	68	13	8 A	8 P	.43	7
26	62	3 P	44	6 A	53	69	11.1	NW	129	11				12
27	70	8 P	36	3 A	53	79	0.6	S	80	13	7 P	12 P	.13	12
28	61	12 A	49	6 A	55	67	10.6	W	229	25				10
29	56	2 P	38	6 A	47	66	11.2	NW	213	25				18
30	49	4 P	28	6 A	38.5	71	6.9	SE	42	5				26.5

* Based on least time required to blow one mile.

WALTER S. FOSTER, *Observer*

MONTHLY SUMMARY

SEPTEMBER 1951		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.407	30.45	30.65, 1924
Minimum	29.722	29.57	28.41, 1938
Mean semi-daily	30.095	30.00	
Range	0.685	.88	1.99, 1938; .57, 1910
Air Temperature, in Degrees F.			
Highest	85, 12th	87.7	97, 1895, 1929
Lowest	28, 30th	33.2	24.5, 1914
Mean	61.4	61.7	
Range	57	54.5	
Highest mean daily	75.5, 14th		
Lowest mean daily	38.5, 30th		
Mean maximum	72.1		
Mean minimum	50.8		
Greatest daily range	36, 9th, 10th		
Least daily range	2, 15th		
Degree-days of heating load for month,	147		
Degree-days cumulative for season	147		
Precipitation, in inches			
Precipitation	2.63	4.24	14.55, 1938; .52, 1914
Snow			
Maximum precip. in 24 hrs.	1.03, 15th		
Number of days with .01 or more	7	10	16, 1933; 3, 1903
Wind, in miles			
Total movement	2769	3271	4,686, 1896; 1,414, 1894
Greatest daily movement	229, 28th		
Least daily movement	20, 5th		
Mean hourly velocity	3.9	4.5	
Maximum velocity	25, 28th, 29th	25.9	80, 1938
Wind, direction			
Prevailing direction	WSW	WSW	
North, days	3		
Northeast, days	1		
East, days	0		
Southeast, days	5		
South, days	7		
Southwest, days	1		
West, days	6		
Northwest, days	7		
Weather			
Mean relative humidity, percent	81.3	73.6	
Mean cloudiness, percent	29.1	49.9	70, 1934; 23, 1947
Number of clear days	13	10	19, 1932; 2, 1907, 1928
Number of fair days	10	10	19, 1908; 3, 1889
Number of cloudy days	7	10	20, 1934; 3, 1941, 1948
Number of hours bright sunshine	203.9	201	255, 1916; 106, 1934
Percent of possible hours of bright sunshine	54.5	54.9	
Thunder and lightning			
First frost	30th	Sept. 21	Oct. 13, 1909; Aug. 22, 1894-95

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1950.

REMARKS

The weather for the month of September was mild and dry. The mean daily temperatures for the month averaged 61.4, only 0.3 degrees below the normal mean daily temperature of September. Although the low precipitation of 2.63 inches was considerably under the 4.24 inch average for the month, higher than normal relative humidity helped offset the effect of the light rainfall. Nearly 40 percent of the month's rainfall was accounted for by the storm of the 15th.

Heating load for the month was 147 degree-days, slightly more than normal, but one-sixth of the total came on the 30th, accompanying the first frost of the season.

While the first frost of the season occurred on the 30th, 9 days later than normal, it may be noted that the records show no first frost to have occurred on the average date, the 21st, in this century.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 754 October 1951

Meteorological Observations

FOR

OCTOBER

1951

EARLE F. COX

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 ft. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hr.*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	71	2 P	45	6 A	58	77	7.5	SW	52	5	11 P	12 P	.04	
2	70	12 A	54	4 A	62	84	3.2	S	23	5				
3	64	12 A	58	4 A	61	87	0.0	N	42	4				
4	75	1 P	55	6 A	65	88	2.4	N	122	10				
5	82	3 P	63	6 A	72.5	85	7.2	NW	143	12				
6	77	2 P	55	5 A	66	73	8.4	NW	144	20				
7	56	0 A	46	4 P	51	83	0.0	NE	113	14	4 A	12 P	1.66	
8	64	2 P	45	2 A	54.5	76	8.1	NW	154	20	0 A	2 P	.36	
9	63	4 P	45	6 A	54	65	10.7	NNW	182	20				
10	56	2 P	33	7 A	44.5	68	8.5	E	105	10				
11	52	12 A	41	12 P	46.5	82	1.0	N	190	20	2 A	12 P	.93	
12	65	2 P	41	4 P	53	75	8.4	N	140	20	0 A	3 A	.03	
13	59	4 P	28	7 A	43.5	73	10.5	NW	61	10				
14	72	3 P	27	7 A	49.5	70	10.6	S	56	8				
15	73	3 P	35	5 A	54	85	8.2	S	91	13				
16	75	4 P	47	7 A	61	88	5.9	S	44	4				
17	75	2 P	41	7 A	58	81	8.9	SS	58	13				
18	66	3 P	58	4 A	62	84	5.2	N	110	10				
19	68	3 P	47	7 A	57.5	81	8.0	SW	59	14				
20	58	2 P	38	7 A	48	64	10.5	N	158	17				
21	63	3 P	30	7 A	46.5	69	9.7	SE	54	7				
22	66	2 P	51	0 A	58.5	71	3.6	SSE	98	10				
23	71	1 P	52	0 A	61.5	72	6.7	SSE	80	8				
24	72	2 P	54	0 A	63	81	2.0	S	94	10	2 P	12 P	1.15	
25	59	11 A	50	7 A	54.5	70	5.7	NW	126	25	0 A	2 A	.23	
26	74	3 P	40	5 A	57	60	9.6	NW	114	8				
27	69	10 A	47	7 A	58	57	6.1	SE	213	28				
28	42	6 P	38	8 A	40	81	0.0	NNW	88	10	8 A	5 P	.26	
29	51	2 P	32	12 P	41.5	59	9.0	NW	231	28				
30	54	2 P	30	2 A	42	63	4.0	S	63	8				
31	64	2 P	45	2 A	54.5	67	3.0	SSW	108	28				

* Based on least time required to blow one mile.

MARIUS P. VAROUDES, *Observer*

MONTHLY SUMMARY

OCTOBER 1951		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.674, 14th	30.53	30.68, 1929
Minimum	29.552, 28th	29.42	29.00, 1926
Mean semi-daily	30.142	30.06	
Range	1.122	1.11	1.47, 1926; .76, 1899
Air Temperature, in Degrees F.			
Highest	82, 5th	79.4	90.5, 1908
Lowest	27, 14th	23.4	17, 1936
Mean	54.8	50.5	57.4, 1947; 43.2, 1890
Range	55	56.0	
Highest mean daily	72.5, 5th		
Lowest mean daily	40, 28th		
Mean maximum	65.3		
Mean minimum	44.2		
Greatest daily range	45, 14th		
Least daily range	4, 28th		
Degree-days of heating load for month	328.5		
Degree-days cumulative for season	483		
Precipitation, in inches			
Precipitation	4.66	3.29	8.81, 1911; .01, 1924
Snow	None		
Maximum precip. in 24 hrs.	1.66, 7th		
Number of days with .01 or more	8	9	15, 1913; 1, 1897, 1924
Wind, in miles			
Total movement	3216	4074	5,467, 1910; 2,540, 1894
Greatest daily movement	231, 20th		
Least daily movement	23, 2nd		
Mean hourly velocity	4.32	5.4	
Maximum velocity	28, 27th, 29th, 31st	29.5	42, 1937
Wind, direction			
Prevailing direction	WNW	W	
North, days	7		
Northeast, days	1		
East, days	1		
Southeast, days	3		
South, days	8		
Southwest, days	3		
West, days	0		
Northwest, days	8		
Weather			
Mean relative humidity, percent	74.8	69.0	
Mean cloudiness, percent	35.5	48	67, 1932; 18, 1924
Number of clear days	8	10	21, 1938; 1, 1911
Number of fair days	13	10	17, 1924; 3, 1938
Number of cloudy days	10	11	19, 1896; 3, 1924
Number of hours bright sunshine	192.6	175.0	232, 1923, 1938; 91, 1913
Percent of possible hours of bright sunshine	56.1	51.3	
Thunder and lightning	None		

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1950.

REMARKS

In general, pleasant weather prevailed throughout the month of October, providing an opportunity for the observance of brilliant foliage brought out by the frost during the last week of September. Although the precipitation was above normal with a recording of 4.66 compared to a normal of 3.29, the mean cloudiness was far below normal with a recording of 35.5 percent compared to a normal of 48 percent. The percent of possible hours of bright sunshine was also somewhat above normal with a reading of 56.1 percent compared to a normal of 51.3 percent.

The mean daily temperature was above normal with a reading of 54.8 compared to a normal of 50.5. The mean relative humidity continued to be considerably above normal. The figure for the month of October was 74.8 percent compared to a normal of 69.0 percent. The mean relative humidity has been above normal every month for over a year. In some months this figure has been as high as 12 percent above normal. The relative humidity of 74.8 for the month of October is closer to the normal than the relative humidity in most of the months during the previous year.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 755 November 1951

Meteorological Observations
FOR
NOVEMBER
1951

EARLE F. COX

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 ft. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	42	0 A	31	12 P	36.5	80	0.0	N	225	15	5 A	1 P	.57	
2	36	12 M	27	6 A	31.5	78	0.0	N	133	11	7 P	12 P	.37	
3	46	12 M	30	12 P	38	83	0.0	N	119	12	0 A	8 A	2.04	.5
4	43	2 P	22	6 A	32.5	69	7.5	S E	110	7				
5	45	2 P	23	7 A	34	71	6.2	N	90	13				
6	38	1 P	20	7 A	29	70	7.5	N	99	8				
7	47	1 P	28	11 P	37.5	86	0.0	N	99	13	8 A	11 P	1.75	
8	49	12 M	35	7 A	42	79	4.6	W	129	32				
9	49	4 P	33	8 A	41	66	9.2	N W	269	22				
10	59	2 P	26	6 A	42.5	78	7.1	S W	36	7				
11	51	2 P	29	6 A	40	71	7.5	N	149	20				
12	50	2 P	25	6 A	37.5	80	9.0	W	35	5				
13	66	2 P	30	2 A	48	82	6.1	S E	74	10				
14	65	11 A	51	0 A	58	87	2.6	S E	93	7	11 A	11 P	.46	
15	63	1 P	52	7 A	57.5	83	0.0	S E	163	22				
16	47	11 A	38	4 A	42.5	85	0.0	S W	149	10	8 A	9 P	.44	
17	46	10 A	39	7 A	42.5	80	3.3	N	168	17			T	
18	36	2 P	27	6 A	31.5	71	8.6	W	253	20				
19	36	1 P	25	3 A	30.5	71	6.7	N W	196	20				
20	32	11 A	20	2 A	26	71	3.8	N W	216	20				
21	43	3 P	16	7 A	29.5	70	8.6	N W	46	8				
22	56	4 P	18	5 A	37	70	1.7	S E	110	11				
23	59	2 P	40	9 P	49.5	75	0.6	S E	179	13	5 P	12 P	.05	
24	48	8 A	44	7 A	46	85	0.0	S E	164	28	0 A	9 A	.08	
25	42	2 P	23	7 A	32.5	73	8.3	N W	100	10				
26	44	12 M	27	3 A	35.5	90	2.1	N	155	32	2 A	10 A	.63	2.5
27	30	12 M	24	8 A	27	78	8.7	N E	413	28				
28	26	7 P	8	7 A	17	79	2.8	N	49	4				
29	46	3 P	17	7 A	31.5	85	8.0	N E	17	5				
30	49	2 P	16	7 A	32.5	88	8.0	N	20	2				

*Based on least time required to blow one mile.

Roger F. Johnson, *Observer*

MONTHLY SUMMARY

NOVEMBER 1951		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.784, 6th	30.59	30.87, 1932
Minimum	29.380, 3rd	29.30	28.73, 1904
Mean semi-daily	30.087	30.05	
Range	1.404	1.29	1.84, 1904; 0.89, 1943
Air Temperature, in Degrees F.			
Highest	66, 13th	66.0	82, 1950
Lowest	8, 28th	12.9	4, 1938
Mean	37.2	38.9	44.1, 1931; 33.6, 1901
Range	58	53.0	
Highest mean daily	58, 14th		
Lowest mean daily	17, 28th		
Mean maximum	46.3		
Mean minimum	28.1		
Greatest daily range	38, 22nd		
Least daily range	4, 24th		
Degree-days of heating load for month	833.5	783	
Degree-days cumulative for season	1328.0		
Precipitation, in inches			
Precipitation	6.39	3.41	8.64, 1927; 0.63, 1917
Snow	3.0	2.34	13.50, 1938
Maximum precip. in 24 hrs.	2.04, 3rd		
Number of days with .01 or more	9	9	22, 1921; 2, 1904
Wind, in miles			
Total movement	4058	4531	5,978, 1906; 2,589, 1889
Greatest daily movement	413, 27th		
Least daily movement	17, 29th		
Mean hourly velocity	5.6	6.3	
Maximum velocity	32, 8th, 26th	30.3	48, 1948, 1950
Wind, direction			
Prevailing direction	N	WNW	
North, days	11		
Northeast, days	2		
East, days	0		
Southeast, days	7		
South, days	0		
Southwest, days	2		
West, days	3		
Northwest, days	5		
Weather			
Mean relative humidity, percent	77.9	70.6	
Mean cloudiness, percent	48.8	55.1	78, 1947; 34, 1917
Number of clear days	10	6	15, 1903; 0, 1948
Number of fair days	8	9	16, 1912; 4, 1889, 1930, '32 '35
Number of cloudy days	12	15	24, 1927; 9, 1905, 1917, 1949
Number of hours bright sunshine	138.5	121	182, 1903; 44, 1948
Percent of possible hours of bright sunshine	47.4	41.3	
Thunder and lightning	0		
First Snow	3rd	Nov. 6	Oct. 10, 1925; Dec. 13, 1941

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1950.

REMARKS

The mean daily air temperature during the month of November was slightly below normal, and the rainfall for the month was far above normal. The lowest temperature recorded during the month was 8; this was recorded on November 28. The highest temperature was 66, and the mean daily temperature during the month was 37.2. The normal mean daily temperature for the month is 38.9.

As a result of the low mean daily temperature for the month, the number of degree-days of heating load for the month was slightly above normal. The reading for this was 835 compared to a normal of 783. The accumulative degree-days for the season stand at 1310.5 which is very close to normal.

The total precipitation for the month was 6.39 inches. This is far above the normal rainfall of 3.41 inches for the month. The first snowfall occurred on November 3, and the total snowfall for the month was 3 inches. The maximum precipitation in 24 hours during the month occurred on the 3rd when 2.04 inches of rainfall was recorded. On nine days of the month the rainfall exceeded .01 inches. The wind movement during the month was not excessive, the highest velocities being recorded on the 8th and 26th; the velocity reached 32 miles per hour.

The mean relative humidity for the month continued far above normal with a reading of 77.9 compared to a normal of 70.6. This tendency has continued for over a year. The mean cloudiness for the month was slightly below normal, and the percent of possible hours of bright sunshine was slightly above normal.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 756 December 1951

Meteorological Observations

FOR

DECEMBER

1951

EARLE F. COX

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	46	2 P	22	7 A	34	92	6.7	N	4	7				
2	51	3 P	33	7 A	42	91	7.6	N	102	13				
3	50	3 P	22	8 A	36	92	7.9	N	24	6				
4	42	2 P	25	4 A	33.5	92	0.7	N W	12	1				
5	59	8 P	38	12 P	48.5	97	0.0	S E	53	20	3 A	11 P	.61	
6	57	3 P	51	7 A	54	98	0.0	S	142	9				
7	59	3 P	48	8 A	53.5	96	2.1	S	83	13	8 P	9 P	.13	
8	61	12 M	54	1 A	57.5	72	6.6	N E	182	25				
9	47	5 P	39	8 A	43	87	0.0	W	70	25	2 A	2 P	.56	
10	43	12 M	34	8 A	38.5	75	4.0	N	280	22				
11	35	1 P	18	5 A	26.5	86	4.2	N W	72	10				
12	38	1 P	23	6 A	30.5	85	7.0	W	100	20				
13	26	2 P	19	7 A	22.5	69	3.5	N	222	20				
14	28	3 P	15	7 A	21.5	81	4.0	N W	115	13	5 P	12 P	.20	3.0
15	28	11 A	20	2 P	24	89	6.2	W	224	40	0 A	10 A	.21	4.0
16	15	2 P	5	7 A	10	70	8.3	W	224	20				
17	18	3 P	–8	6 A	5	78	7.6	S E	63	7				
18	26	8 P	7	2 A	16.5	85	0.0	N W	107	32	10 A	12 P	.20	2.0
19	20	3 P	13	7 A	16.5	74	7.2	N W	143	17	0 A	2 A	.03	
20	25	12 M	–9	6 A	8	84	3.5	N	27	5	1 P	12 P	.31	3.5
21	53	3 P	25	0 A	39	95	6.0	S E	85	13	0 A	10 A	1.39	1.1
22	40	0 A	23	12 P	31.5	73	7.3	W	199	20				
23	32	4 P	18	4 A	25	67	7.1	S E	69	15				
24	38	2 P	23	12 P	30.5	72	5.4	N W	76	20				
25	24	3 P	11	6 A	17.5	87	0.0	N W	31	2	4 P	12 P	.18	2.0
26	36	2 P	23	0 A	29.5	89	4.6	N W	108	22	0 A	11 A	.32	4.1
27	28	2 P	12	2 A	20	76	8.0	N W	156	32				
28	22	3 P	–9	7 A	6.5	77	6.6	S	53	8				
29	34	2 P	18	5 A	26	87	0.9	S E	91	10				
30	42	12 M	31	10 P	36.5	95	0.0	S E	76	10	4 P	8 P	.16	
31	44	2 P	36	7 A	40	94	3.8	N W	88	7				

*Based on least time required to blow one mile.

Roger F. Johnson, *Observer*

MONTHLY SUMMARY

DECEMBER 1951		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.569, 20th	30.66	31.104, 1949
Minimum	29.322, 15th	29.27	28.85, 1915
Mean semi-daily	30.091	30.06	
Range	1.247	1.38	1.78, 1895, 1.01, 1892
Air Temperature, in degrees F.			
Highest	61, 8th	54.3	65.5, 1908
Lowest	—9, 20th, 28th	1.09	—22.5, 1917
Mean	29.8	27.5	36.9, 1891; 17.1, 1917
Range	70	56.2	
Highest mean daily	57.5, 8th		
Lowest mean daily	5, 17th		
Mean maximum	37.6		
Mean minimum	21.9		
Greatest daily range	34, 20th		
Least daily range	6, 6th		
Degree-days of heating load for month	1091.5	1162.5	
Degree-days cumulative for season	2419.5	2494.0	
Precipitation, in inches			
Precipitation	4.35	3.39	7.77, 1901; .58, 1943
Snow	19.7	8.50	26.50, 1902, T, 1891, 1943
Maximum precip. in 24 hrs.	1.39, 21st		
Number of days with .01 or more	12	10	17, 1902; 4, 1892, 1943
Wind, in miles			
Total movement	3281	4710	6,694, 1925; 3,239, 1918
Greatest daily movement	280, 10th		
Least daily movement	4, 1st		
Mean hourly velocity	4.4	6.3	
Maximum velocity	40, 15th	31.4	66, 1949
Wind, direction			
Prevailing direction	NW	WNW	
North, days	6		
Northeast, days	1		
East, days	0		
Southeast, days	6		
South, days	3		
Southwest, days	0		
West, days	5		
Northwest, days	10		
Weather			
Mean relative humidity, percent	84.0	69.4	
Mean cloudiness, percent	51.6	54.9	71, 1929; 39, 1919
Number of clear days	10	8	15, 1890, 0. 1948
Number of fair days	10	9	16, '09; 4, '89, '30, '31, '36, '38
Number of cloudy days	11	14	25, 1948; 7, '09, '23
Number of hours bright sunshine	136.8	128	172, 1896; 27, 1948
Percent of possible hours of bright sunshine	46.8	45.2	
Thunder and lightning	18th		
First snow		Nov. 6	

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1950.

ANNUAL SUMMARY

ANNUAL		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.850, Feb. 10th	30.81	31.10, 1949
Minimum	28.996, Jan. 15th	28.95	28.41, 1938
Mean semi-daily	30.036	30.01	
Range	1.854	1.85	2.47, 1938; 1.38, 1933
Air Temperature, in degrees F.			
Highest	91, July 16th, 26th	95.7	104, 1911
Lowest	—9, Dec. 20th, 28th	–12.2	—26, 1904
Mean	49.3	47.4	56.9, 1949; 44, 1904
Range	100	107.8	
Highest mean daily	78, July 30th, 31st; Aug. 10th, 11th, 15th		
Lowest mean daily	4, Jan. 31st		
Mean maximum	59.3	57.8	
Mean minimum	39.4	36.5	
Greatest daily range	45, October 14th		
Least daily range	2, Feb. 8th, Sept 15th		
Degree-days cumulative for year	6237.0	6698.	
Precipitation, in inches			
Precipitation	48.39	43.70	59.00, 1938; 30.68, 1908
Snow	52.5	47.78	89.00, 1893; 24.50, 1919
Maximum precip. in 24 hrs.	2.04, Nov. 3rd		
Number of days with .01 or more	122	124	146, 1945; 96, 1924
Wind, in miles			
Total movement	41,208	52,223	63,571, 1908; 36,257, 1894
Greatest daily movement	471, Feb. 24th		705, 1909
Least daily movement	2, Feb. 5th		
Mean hourly velocity	4.7	5.8	
Maximum velocity	40, April 15th, May 2nd, Dec. 15th	39.5	80, 1938
Wind, direction			
Prevailing direction	NW	W	
North, days	89		
Northeast, days	12		
East, days	8		
Southeast, days	40		
South, days	61		
Southwest, days	38		
West, days	36		
Northwest, days	81		
Weather			
Mean relative humidity, percent	77.9	67.6	
Mean cloudiness, percent	49.5	51.7	60, '98, '01, '02; 41, '08, '24
Number of clear days	101	116	217, 1941; 59, 1927
Number of fair days	127	123	182, 1912; 64, 1936
Number of cloudy days	137	126	179, '01, '02; 71, 1910, 1941
Number of hours bright sunshine	1997.3	2,353	3038, 1941; 1864, 1902
Percent of possible hours of bright sunshine	43.5	52.8	
Last snow	March 23rd	April 15	Mar. 14 '10; May 11, '07, '45
First snow	Nov. 3rd	Nov. 6	Oct. 10, '25; Dec. 13, '41
Last frost	May 14th	May 14	Apr. 14, '43; June 8, '32
First frost	Sept. 30th	Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 757 January 1952

Meteorological Observations

FOR

JANUARY

1952

EARLE F. COX

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	43	2 P	35	3 A	39	98	0.0	S E	70	8				
2	42	2 P	34	6 A	38	88	0.0	N W	36	8	10 P	12 P	.06	.6
3	36	1 P	31	8 A	33.5	83	6.1	N	151	28	0 A	8 A	.29	2.9
4	37	1 P	23	7 A	30	78	5.0	S W	95	12				
5	30	4 P	23	8 P	26.5	99	1.4	N	140	15	4 A	2 P	.47	8
6	31	2 P	28	11 P	29.5	91	3.5	N	89	17				
7	21	5 P	16	8 A	18.5	87	6.0	N	262	20				
8	35	3 P	12	7 A	23.5	69	8.1	N E	245	13				
9	27	2 P	14	3 A	20.5	73	2.8	N W	4	3				
10	34	2 P	22	9 P	28	87	0.0	W	86	28	8 A	12 A	.03	.6
11	34	3 P	17	7 A	25.5	75	8.1	N	243	17				
12	38	1 P	14	2 A	26	79	4.0	S W	33	4				
13	45	2 P	23	8 A	34	84	5.9	S	6	5				
14	38	3 P	32	1 A	35	90	1.0	N	34	3				
15	41	8 P	33	8 A	37	96	0.0	E	24	28	9 A	2 P	.14	
16	42	2 P	35	1 A	38.5	77	6.6	N E	231	28				
17	40	12 P	17	8 A	28.5	90	0.0	E	49	32	1 P	6 P	.25	
18	45	6 A	33	8 P	39	74	5.0	N W	348	40	0 A	4 A	.23	
19	39	2 P	24	8 A	31.5	68	6.4	S	122	15	11 P	12 P	.02	0.3
20	42	2 P	29	0 A	35.5	90	0.0	N W	212	28	0 A	10 A	.45	1.4
21	38	0 A	17	12 P	27.5	69	7.6	N	368	28				
22	30	12 P	10	5 A	20	79	0.0	N	78	10	5 P	12 P	.43	1.1
23	42	10 A	28	12 P	35	88	2.0	N	73	20	0 A	4 A	.39	
24	30	0 A	16	12 P	23	73	0.3	N W	202	15				
25	28	12 P	12	7 A	20	71	5.4	S W	68	13				
26	48	4 P	26	4 A	37	100	0.0	S	139	15	2 A 5 P	11 A 12 P	.64 .27	0.8
27	46	4 P	35	12 P	40.5	99	0.0	N W	32	7	0 A	4 A	.07	
28	38	0 A	35	8 A	36.5	86	0.0	N W	69	14	0 A 3 P	6 A 9 P	.16 .12	2.5
29	25	0 A	8	12 P	16.5	76	6.7	N W	191	17				
30	20	4 P	−7	7 A	6.5	72	7.8	N W	56	8				
31	28	4 P	−3	7 A	12.5	75	3.0	N W	18	6				

*Based on least time required to blow one mile.

ROGER F. JOHNSON, *Observer*

MONTHLY SUMMARY

JANUARY, 1952		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.660, 25th	30.70	31.00, 1927
Minimum	29.401, 18th	29.20	28.55, 1913
Mean semi-daily	30.065	30.07	
Range	1.259	1.50	2.18, 1913; 0.97, 1896
Air Temperature, in degrees F.			
Highest	48, 26th	51.1	66.0, 1932
Lowest	–7, 30th	—7.1	—26.0, 1904
Mean	28.8	24.2	34.2, 1913; 13.9, 1918
Range	55	58.2	
Highest mean daily	40.5, 27th		
Lowest mean daily	6.5, 30th		
Mean maximum	35.9		
Mean minimum	21.7		
Greatest daily range	31, 31st		
Least daily range	3, 6th, 28th		
Degree-days of heating load for month	1122.5	1265	
Degree-days cumulative for season	3542.0		
Precipitation, in inches			
Precipitation	4.02	3.61	7.15, 1898; 1.07, 1896
Snow	18.2	13.32	33, 1898, 1923; 1.50, '08
Maximum precip. in 24 hrs.	0.91, 25th		
Number of days with .01 or more	14	11	17, '50, '20; 4, 1901
Wind, in miles			
Total movement	3774	5055	7770, 1908; 2896, 1895
Greatest daily movement	368, 21st		
Least daily movement	4, 9th		
Mean hourly velocity	5.07	6.8	
Maximum velocity	40, 18th	32.7	47, 1938
Wind, direction		[illegible]	
Prevailing direction	NNW	WNW	
North, days	9		
Northeast, days	2		
East, days	2		
Southeast, days	1		
South, days	3		
Southwest, days	3		
West, days	1		
Northwest, days	10		
Weather			
Mean relative humidity, percent	82.7	70.1	
Mean cloudiness, percent	61.1	55	78, 1932; 37, 1908
Number of clear days	5	9	20, 1944; 1, 1949
Number of fair days	11	9	18, 1890, 1926; 3, 1916, 1944
Number of cloudy days	15	13	22, 1923, '31, '49; 4, 1920, '39
Number of hours bright sunshine	102.7	137	214, 1920; 50.4, 1949
Percent of possible hours of bright sunshine	34.9	46.7	

Note—The first column in the above summary gives observations made during the month. The second column gives the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1951.

REMARKS

The mean daily temperature during the month of January was considerably above the normal, the reading being 28.8 degrees, as compared to a normal of 24.2 degrees. This resulted in a reduction in the degree days so that up to the middle of the heating season on January 22 the degree days accumulated were 3184.5, as compared to a normal of 3352.

The precipitation during the month was 4.02 inches; there was also 18.2 inches of snowfall. The normal of these two for the month is 3.61 and 13.32 inches, respectively. This excess of precipitation over the normal has continued for some time. During the month there were 14 days which had a daily total precipitation of 0.01 inches or more.

The wind movement during the month was considerably below normal. The total movement was 3774 miles as compared to a normal of 5055 miles. However, the winds during the month were not entirely low in velocity, as a recording of 40 miles per hour was taken on January 18th.

The mean relative humidity for the month was 82.7 per cent, as compared to a normal of 70.1 per cent. This is in line with readings which for over a year have continued to be 10 points above normal.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 758 February 1952

Meteorological Observations

FOR

FEBRUARY
1952

EARLE F. COX

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	47	4 P	15	7 A	31	78	5.5	S E	88	9				
2	48	3 P	31	12 P	39.5	86	2.2	N	116	12				
3	48	2 P	25	7 A	36.5	88	7.3	S	72	14				
4	42	10 A	37	3 A	39.5	93	0.0	N E	109	10	2 A 4 P	7 A 11 P	.22 .32	
5	44	2 P	33	9 P	38.5	86	1.8	N	73	20				
6	40	3 P	29	12 P	34.5	69	5.7	N W	200	13				
7	34	1 P	24	12 P	29	87	4.0	N	91	15	3 A	5 A	.03	0.6
8	40	12 M	21	4 A	30.5	76	7.0	S	77	15	11 P	12 P	.02	
9	37	12 M	25	12 P	31	75	6.7	N W	268	28	0 A	2 A	.09	
10	38	1 P	24	10 P	31	78	0.3	S W	129	17				
11	45	3 P	24	4 A	34.5	87	4.2	N W	60	25	8 A	11 A	.28	
12	30	0 A	15	12 P	22.5	62	9.5	N W	461	40				
13	22	4 P	12	8 A	17	62	9.4	N W	344	20				
14	27	4 P	9	7 A	18	68	9.5	N W	287	25				
15	39	2 P	12	7 A	25.5	62	9.3	N W	121	13				
16	38	2 P	13	7 A	25.5	67	6.1	N W	67	13				
17	36	2 P	26	12 P	31	96	0.0	N E	125	25	1 A	12 P	.64	8.0
18	35	3 P	25	12 P	30	100	0.0	N E	455	32	0 A	10 A	.31	2.7
19	34	4 P	18	12 P	26	88	6.8	N W	253	20				
20	39	4 P	10	6 A	24.5	88	9.7	N E	73	10				
21	37	2 P	23	12 P	30	98	3.6	N E	84	9	7 A	10 A	.06	0.4
22	37	12 M	24	6 A	30.5	93	0.3	N E	61	11				
23	35	12 M	11	12 P	23	81	6.2	N W	51	8				
24	38	4 P	8	7 A	23	86	9.5	N E	18	5				
25	40	3 P	10	4 A	25	87	8.0	S W	20	8				
26	43	4 P	14	6 A	28.5	79	9.3	S W	30	5				
27	34	2 P	19	5 A	26.5	87	0.0	N W	114	20				
28	41	3 P	27	6 A	34	73	9.0	N W	285	20				
29	41	12 M	22	12 P	31.5	69	9.7	W	83	17				

*Based on least time required to blow one mile.

Roger F. Johnson, *Observer*

MONTHLY SUMMARY

FEBRUARY, 1952		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.277, 24th	30.63	31.05, 1920
Minimum	29.433, 11th	29.24	28.56, 1895
Mean semi-daily	29.908	30.04	
Range	0.844	1.38	1.89, '00, '08; .88, '13, '31
Air Temperature, in degrees F.			
Highest	48, 2nd, 3rd	50.5	65.0, 1930
Lowest	8, 24th	—7.4	—23, 1943
Mean	29.2	23.7	32.6, 1890; 11.6, 1934
Range	40	58	
Highest mean daily	39.5, 2nd, 4th		
Lowest mean daily	17, 13th		
Mean maximum	38.2	32.8	
Mean minimum	20.2	14.5	
Greatest daily range	32, 1st		
Least daily range	5, 4th		
Degree-days of heating load for month	1037.5	1167	
Degree-days cumulative for season	4579.5	4927	
Precipitation, in inches			
Precipitation	1.97	3.19	8.12, 1900; 0.62, 1901
Snow	11.7	13.99	48.75, 1893; 0.50, 1937
Maximum precip. in 24 hrs.	.64, 17th		
Number of days with .01 or more	8	10	15, 1893, 1920; 4, 1901
Wind, in miles			
Total movement	4215	4776	6445, 1896; 3402, 1949
Greatest daily movement	461, 12th		
Least daily movement	18, 24th		
Mean hourly velocity	6.1	7.1	
Maximum velocity	40, 12th	31.7	50, 1946
Wind, direction			
Prevailing direction	NW	WNW	
North, days	3		
Northeast, days	7		
East, days	0		
Southeast, days	1		
South, days	2		
Southwest, days	3		
West, days	1		
Northwest, days	12		
Weather			
Mean relative humidity, percent	81.0	66.6	
Mean cloudiness, percent	41.4	50.9	66, 1890, 1927; 31, 1905
Number of clear days	11	10	19, 1941; 2, 1927
Number of fair days	10	8	16, 1920; 2, 1936
Number of cloudy days	8	10	16, 1894; 2, 1920
Number of hours bright sunshine	160.6	158	221, 1924; 110, '27, '38
Percent of possible hours of bright sunshine	52.4	53.4	

Note—The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1951.

REMARKS

The mean daily temperature during the month of February was 5.5 degrees above normal. The reading was 29.2 as compared to a normal of 23.7. The degree days for the month were 1037.5 as compared to a normal of 1167. The accumulative degree days for the season at the end of February were 4579.5 as compared to a normal of 4927. The accumulative degree days are slightly above 1950 and also above 1951, but the heating load has still been considerably below normal.

The precipitation for the month was 1.97 inches, which is far below the normal of 3.19 inches. This is the first month for several months that the precipitation has been below normal. The snowfall to the end of February was 42.6 inches, which is 14.45 inches above normal, but warm weather and a certain amount of rainfall have reduced the amount of snow on the ground so that at present there appears to be little danger of flood in the Connecticut Valley from an accumulation of snow. This statement, of course, must be qualified, according to the conditions that prevail in the Connecticut Valley above Amherst. The excess moisture in the soil which has accumulated over a period of several months because of the more than normal rainfall could result in a flood if sudden and heavy rainfall should occur. The soil has little ability, in its present condition, to absorb further moisture.

The mean relative humidity was far above normal for the month, as it has been for many previous months. The mean relative humidity for the month was 81.0 as compared to a normal of 66.6.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 759 March 1952

Meteorological Observations
FOR
MARCH
1952

EARLE F. COX

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

**Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.**

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	29	5 P	12	12 P	20.5	83	1.5	N E	140	17	1 P	2 P	.02	.4
2	38	3 P	3	6 A	20.5	73	10.2	N W	36	3				
3	37	4 P	12	4 A	24.5	72	7.0	N W	60	8				
4	40	3 P	27	4 A	33.5	78	1.3	S E	51	11	8 P	12 P	.32	1.0
5	40	2 P	29	7 A	34.5	97	4.5	N E	266	17	0 A	10 A	.50	1.1
6	38	2 P	29	6 A	33.5	100	2.3	N E	197	12	7 A	10 A	.08	.60
7	38	3 P	33	6 A	35.5	100	0.0	N E	36	5	6 P	7 P	.01	
8	39	1 P	29	6 A	34.0	97	6.8	N W	52	8				
9	41	12 M	28	6 A	34.5	87	7.5	S E	51	5				
10	43	1 P	31	6 A	37	77	7.0	S E	107	13				
11	48	4 P	32	6 A	40	99	1.5	S E	93	32	3 A	7 P	1.37	
12	44	2 P	34	6 A	39	59	10.5	N W	456	25				
13	44	3 P	26	7 A	35	71	8.3	N W	96	20				
14	39	2 P	27	6 A	33	61	11.0	N W	315	25				
15	35	3 P	21	6 A	28	59	10.3	N W	365	32				
16	29	11 P	20	8 A	24.5	69	9.5	N	285	20				
17	44	3 P	28	0 A	36	73	9.8	N W	296	25				
18	50	5 P	28	7 A	39	66	9.0	N W	144	9				
19	39	12 M	32	4 A	35.5	88	3.2	N E	147	14	1 P	12 P	.39	4.3
20	51	6 P	30	6 A	40.5	85	10.0	N W	100	7	0 A	2 A	.04	
21	54	5 P	27	6 A	40.5	95	10.2	N W	48	5	9 A	10 A	.03	
22	52	12 M	30	7 A	41	84	3.5	N W	59	7	6 A	7 A	.01	
23	40	2 P	35	8 A	37.5	99	0.0	N W	57	8	8 A	1 P	.40	
24	42	4 P	33	2 A	37.5	95	0.0	S E	93	6				
25	50	3 P	27	6 A	38.5	66	10.9	S E	122	14				
26	66	3 P	28	6 A	47	71	11.7	S E	133	12				
27	53	2 P	31	6 A	42	65	12.1	N W	141	12				
28	47	4 P	25	7 A	36	73	11.8	N W	120	14				
29	49	2 P	24	6 A	36.5	70	11.5	N E	91	11				
30	51	3 P	24	6 A	37.5	62	11.5	N E	99	17				
31	55	4 P	31	6 A	43	74	11.8	S E	106	8				

*Based on least time required to blow one mile.

Roger F. Johnson, *Observer*

MONTHLY SUMMARY

MARCH, 1952		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.381	30.57	31.05, 1943
Minimum	29.162	29.24	28.47, 1914
Mean semi-daily	29.818	30.04	
Range	1.219	1.34	2.10, 1914; 0.85, 1915
Air Temperature, in degrees F.			
Highest	66, 26th	63.8	85, 1929
Lowest	3, 2nd	6.1	-7.5, 1906
Mean	35.3	34.4	
Range	63	57.6	
Highest mean daily	47, 26th		
Lowest mean daily	20.5 1st, 2nd	43.2	
Mean maximum	44.0	25.4	
Mean minimum	26.6		
Greatest daily range	38, 26th		
Least daily range	5, 7th, 23rd		
Degree-days of heating load for month	919.5	949	
Degree-days cumulative for season,	5499.0	5876	
Precipitation, in inches			
Precipitation	3.17	3.70	7.89, 1942; 0.12, 1915
Snow	7.4	7.47	27, 1899; 0, 1921
Maximum precip. in 24 hrs.	1.37, 11th		
Number of days with .01 or more	11	11	17, 1890, 1913, 1936; 3, 1915
Wind, in miles			
Total movement	4362	5944	8182, 1896; 3006, 1905
Greatest daily movement	456, 12th		
Least daily movement	36, 2nd, 7th		
Mean hourly velocity	5.9	7.7	
Maximum velocity	32, 11th, 15th	31.2	48, 1932, 1939, 1941, 1942
Wind, direction			
Prevailing direction	NW	WNW	
North, days	1		
Northeast, days	7		
East, days	0		
Southeast, days	8		
South, days	0		
Southwest, days	0		
West, days	0		
Northwest, days	15		
Weather			
Mean relative humidity, percent	79.0	64.2	
Mean cloudiness, percent	53.4	51.8	68, 1901; 27, 1915
Number of clear days	14	11	22, 1924; 3, 1901
Number of fair days	3	10	17, 1900; 1, 1943
Number of cloudy days	14	10	21, 1901; 1, 1915
Number of hours bright sunshine	226.2	199	292, 1924; 93, 1901
Percent of possible hours of bright sunshine	61.2	53.6	
Thunder and lightning	—		

Note—The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1951.

REMARKS

The mean daily temperature during the month of March was only slightly above normal with a reading of 35.3 compared to a normal of 34.4. The degree days of 919.5 for the month brought the accumulative degree days for the season to the end of March to a total of 5499. The normal for this period is 5876.

The precipitation for the month was 3.17 compared to a normal of 3.70. Even though this amount of rainfall was below normal, a slight increase in rainfall in the Connecticut Valley could have resulted in a flood inasmuch as the river was close to flood stage. The snowfall during the month was 7.4 inches compared to a normal of 7.47 inches. The total snowfall for the season to the end of March was 50.0 inches.

The mean relative humidity continued to be far above normal with a recording of 79.0 as compared to a normal of 64.2. The number of hours of bright sunshine, which may have an effect upon the 1952 crops, was considerably above normal with a recording of 61.2 compared to a normal of 53.6. This is far in excess of the recording in March of 1951 when a reading of 32.2 was recorded.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 760 April 1952

Meteorological Observations

FOR

APRIL
1952

EARLE F. COX

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 ft. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	67	2 P	34	6 A	50.5	75	9.8	S E	106	17	11 P	12 P	.10	
2	48	6 P	37	7 A	42.5	96	11.3	N E	106	7	0 A	6 A	.32	
3	56	2 P	37	6 A	46.5	74	12.5	N W	114	14	5 A	6 A	.09	
4	63	4 P	34	6 A	48.5	66	8.0	N W	102	14				
5	52	6 P	35	8 A	43.5	99	0.0	N E	95	13	1P 7P	2P 9P	.22	
6	52	12 M	41	8 A	46.5	75	4.7	S W	185	17				
7	47	2 P	36	7 A	41.5	79	4.2	W	109	11				
8	54	1 P	36	6 A	45	75	7.4	N W	80	10				
9	56	6 P	38	6 A	47	71	10.3	S W	66	6				
10	63	4 P	36	4 A	49.5	74	8.3	S	164	20				
11	48	5 P	35	8 A	41.5	61	12.2	N W	295	20				
12	54	3 P	27	6 A	40.5	62	12.5	S W	46	5				
13	51	4 P	39	6 A	45	65	8.4	N E	71	9				
14	49	3 P	39	6 A	44	99	0.0	N E	107	13	1 A	6 A	.58	
15	51	4 P	41	4 A	46	75	2.5	N E	215	20				
16	66	5 P	32	6 A	49	55	12.5	N E	153	14				
17	73	5 P	30	5 A	51.5	57	12.1	N W	75	11				
18	72	4 P	44	7 A	58	55	12.1	N W	171	17				
19	81	2 P	38	6 A	59.5	65	11.3	S W	106	14				
20	82	1 P	60	4 A	71	54	12.0	N W	310	25				
21	71	3 P	42	6 A	56.5	58	12.2	N	136	14				
22	79	4 P	34	6 A	56.5	67	9.2	S E	82	14				
23	72	9 A	54	3 A	63	71	4.8	N W	128	20				
24	67	4 P	40	5 A	53.5	53	9.8	S E	98	7				
25	53	11 A	43	6 A	48	93	0.0	N E	52	5	10 A	12 P	.70	
26	59	3 P	42	0 A	50.5	93	4.8	N W	35	4	0A 4P	6A 5P	.20	
27	71	3 P	48	6 A	59.5	74	7.9	S E	74	11				
28	58	1 P	49	6 A	53.5	99	0.0	N E	165	13	0 A	7 P	1.19	
29	70	6 P	48	3 A	59	86	9.5	N E	139	10				
30	67	4 P	45	6 A	56	53	7.5	N E	203	25				

*Based on least time required to blow one mile.

HERBERT SAUNDERS, *Observer*

MONTHLY SUMMARY

APRIL, 1952		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.421, 9th	30.48	30.71, 1911
Minimum	29.482, 5th	29.38	28.98, 1943
Mean semi-daily	29.804	29.99	
Range	0.939	1.11	1.52, 1930; 0.65, 1950
Air Temperature, in degrees F.			
Highest	82, 20th	79.4	90, 1941
Lowest	27, 12th	22.0	8.5, 1923
Mean	50.8	45.7	52, 1921; 41, 1943
Range	55	57.4	
Highest mean daily	71, 20th		
Lowest mean daily	40.5, 12th	56.8	
Mean maximum	61.7	34.8	
Mean minimum	39.8		
Greatest daily range	45, 22nd		
Least daily range	9, 28th		
Degree-days of heating load for month,	433	579	
Degree-days cumulative for season,	5932.0	6455	
Precipitation, in inches			
Precipitation	3.40	3.35	6.89, 1929; .55, 1941
Snow	0.0	2.17	11, 1891; 0, 1910, 1934
Maximum precip. in 24 hrs.	1.19, 28th		
Number of days with .01 or more	8	11	18, 1909; 3, 1892
Wind, in miles			
Total movement	3788	5404	8208, 1908; 3853, 1917
Greatest daily movement	310, 20th		
Least daily movement	35, 26th		
Mean hourly velocity	5.3	7.5	
Maximum velocity	25, 20th, 30th	31.4	40, 1935, 1938, 1940, 1945
Wind, direction			
Prevailing direction	NE	WNW	
North, days	1		
Northeast, days	10		
East, days	0		
Southeast, days	4		
South, days	1		
Southwest, days	4		
West, days	1		
Northwest, days	9		
Weather			
Mean relative humidity, percent	72.6	61.6	
Mean cloudiness, percent	61.2	51.8	75, 1901; 34, 1925, 1927
Number of clear days	12	11	23, 1941; 1, 1949
Number of fair days	9	9	18, 1915; 2, 1894, 1901
Number of cloudy days	9	10	22, 1901; 1, 1941
Number of hours bright sunshine	237.8	220	329, 1941; 103, 1901
Percent of possible hours of bright sunshine	59.4	54.7	
Thunder and lightning	—		
Last Snow		Apr. 15	Mar. 14, 1910; May 11, 1907,'45

Note—The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1951.

REMARKS

The mean daily temperature for the month of April was well above normal with a reading of 50.8 as compared to a normal of 45.7. This resulted in less degree days of heating load for the month than is normal. The reading for this was 433 as compared to a normal of 579. The accumulative degree days for the season were 5932 as compared to a normal of 6455.

The precipitation for the month was 3.40 as compared to a normal of 3.35. A great increase in this normal amount of rainfall could have had serious consequences in the Connecticut Valley because the river was nearly at flood stage for the greater part of the month.

The mean relative humidity was much lower than for the month of March but it was still considerably above normal for the month of April. The reading was 72.6 as compared to a normal of 61.6. The increase in the percentage of possible hours of bright sunshine begun in March continued through April. This reading was 59.4 as compared to a normal of 54.7.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 761 May, 1952

Meteorological Observations

FOR

MAY

1952

EARLE F. COX

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.

Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.

Height of wind instruments, 67 ft. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	64	4 P	45	7 A	54.5	54	0.0	N E	159	20				
2	65	6 P	34	5 A	49.5	67	0.8	N E	118	14				
3	60	5 P	32	6 A	46.0	62	13.2	N W	157	17				
4	67	4 P	40	6 A	53.5	59	12.8	N W	208	25				
5	68	7 P	33	6 A	50.5	66	12.5	S W	78	9				
6	60	6 P	36	6 A	48.0	84	5.5	S	100	17	6 P	7 P	.05	
7	60	4 P	47	6 A	53.5	66	10.3	N W	288	20				
8	70	3 P	35	6 A	52.5	54	11.9	N W	174	17				
9	73	5 P	43	6 A	58.0	60	12.8	N W	117	12				
10	80	3 P	40	7 A	60.0	59	9.0	S E	64	6				
11	62	0 A	49	9 A	55.5	100	0.0	N E	89	8	6 A	12 P	.67	
12	65	12 M	45	4 A	55.0	80	4.2	S W	229	25	0 A 12 M	6 A 1 P	1.01 .06	
13	60	11 A	46	6 A	53.0	71	3.1	S W	191	14				
14	67	6 P	46	6 A	56.5	64	7.4	N W	240	20				
15	54	6 P	44	5 A	49.0	96	2.0	N E	49	9	6 A	3 P	.26	
16	62	12 M	47	7 A	54.5	58	13.3	N W	186	25				
17	65	4 P	32	7 A	48.5	65	9.9	N W	10	5				
18	68	6 P	47	6 A	57.5	88	8.9	N W	56	10	0 A 11 A	8 A 12 M	.24 .01	
19	73	2 P	39	5 A	56.0	66	9.3	S	18	8				
20	60	12 M	52	6 A	56.0	95	0.0	S E	52	5	1 P	12 P	.44	
21	65	3 P	49	5 A	57.0	88	4.6	W	53	13	1 A 5 P	4 A 6 P	.06 .04	
22	68	3 P	51	5 A	59.5	72	10.9	N W	223	17				
23	76	4 P	43	4 A	59.5	67	10.3	N	94	11				
24	80	3 P	45	5 A	62.5	69	8.0	S W	29	5				
25	59	3 P	49	8 P	54.0	100	0.0	S E	102	10	4 A	12 P	.84	
26	69	6 P	48	0 A	58.5	94	7.3	N	65	7				
27	77	6 P	49	6 A	63.0	59	13.7	N	158	20				
28	82	4 P	41	6 A	61.5	72	9.8	N W	42	8				
29	80	1 P	58	6 A	69.0	85	6.0	N W	84	11	12 M 7 P	2 P 10 P	.09 .05	
30	73	5 P	53	7 A	63.0	71	10.1	S W	58	5				
31	72	6 P	55	7 A	63.5	97	3.3	S E	69	9	3 A 10 P	9 A 12 P	.12 .06	

*Based on least time required to blow one mile.

ROGER F. JOHNSON, *Observer*

MONTHLY SUMMARY

MAY 1952		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.056, 19th	30.39	30.62, 1936
Minimum	29.200, 12th	29.51	29.10, 1938
Mean semi-daily	29.903	29.96	
Range	0.856	0.88	
Air Temperature, in degrees F.			
Highest	82, 28th	86.1	94.5, 1896, 1911
Lowest	32, 3rd, 17th	31.2	24.0, 1900
Mean	56.1	57.1	
Range	50	54.9	
Highest mean daily	69, 29th		
Lowest mean daily	46, 3rd	56.8	
Mean maximum	67.9	34.8	
Mean minimum	44.3		
Greatest daily range	41, 28th		
Least daily range	8, 20th		
Degree-days of heating load for month	280.5		
Degree-days cumulative for season	6212.5		
Precipitation, in inches			
Precipitation	4.00	3.60	7.44, 1931; .48, 1903
Snow			
Maximum precip. in 24 hrs	1.07, 12th		
Number of days with .01 or more	10	12	20, 1901, 1945; 5, 1903
Wind, in miles			
Total movement	3561	4504	5946, 1907; 2180, 1894
Greatest daily movement	288, 7th		
Least daily movement	10, 17th		
Mean hourly velocity	4.8	6.1	
Maximum velocity	25, 4th, 12th, 16th	28.8	45, 1935
Wind, direction			
Prevailing direction	NW	W	
North, days	3		
Northeast, days	4		
East, days	0		
Southeast, days	4		
South, days	2		
Southwest, days	5		
West, days	1		
Northwest, days	12		
Weather			
Mean relative humidity, percent	74.0	60.7	
Mean cloudiness, percent	54.4	52.1	72, 1948; 30, 1923
Number of clear days	11	11	21, 1944; 0, 1927
Number of fair days	12	11	18, 1949; 5, 1923
Number of cloudy days	8	9	20, 1927; 2, 1941
Number of hours bright sunshine	230.9	252	350, 1944; 137, 1927
Percent of possible hours of bright sunshine	51.1	55.6	
Last Frost	May 17th		

Note—The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column lists extremes observed from 1889 to 1951.

REMARKS

The weather during the month of May was unusual because the mean daily temperature was slightly below normal; the mean daily temperature was 56.1 compared to a normal of 57.1. This resulted in having the degree days for the month above normal. This reading was 280.5 and brought the accumulative degree days for the season to 6212.5.

Rainfall occurred chiefly on weekends. The total rainfall for the month was 4.00 inches as compared to a normal of 3.60 inches.

The mean relative humidity continued to be far above normal with a reading of 74.0 as compared to a normal of 60.7. The mean cloudiness was near normal, and the percent of possible hours of sunshine with the reading of 51.1 was slightly below the normal of 55.6.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 762 June, 1952

Meteorological Observations

FOR

JUNE

1952

ROBERT K. PATTERSON

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	68	2 P	60	5 A	64.0	99	0.0	S	99	20	0 A	10 P	2.70	
2	79	4 P	58	6 A	68.5	68	8.1	N	159	20	8 A	9 A	0.03	
3	83	5 P	48	6 A	65.5	69	8.7	S W	65	9				
4	86	1 P	56	6 A	71.0	70	6.5	S	98	14	11 P	12 P	0.09	
5	85	5 P	56	7 A	70.5	79	9.8	W	69	12				
6	81	12	56	7 A	68.5	81	9.1	S W	97	13	3 P	4 P	0.01	
7	79	6 P	58	3 A	68.5	60	10.7	N	297	28				
8	83	6 P	51	6 A	67.0	58	10.1	W	115	14				
9	81	1 P	62	6 A	71.5	62	3.7	N W	122	15				
10	83	5 P	51	6 A	67.0	64	10.9	W	152	17				
11	68	12	57	6 A	62.5	68	6.5	N W	166	25				
12	74	5 P	57	0 A	65.5	69	9.4	N	257	20				
13	81	4 P	50	5 A	65.5	64	12.3	N	67	10				
14	83	2 P	50	4 A	66.5	65	12.6	S	91	11				
15	88	5 P	51	5 A	69.5	72	10.3	N W	168	17	4 A	5 A	0.01	
16	84	4 P	58	6 A	71.0	58	11.2	W	115	13				
17	87	4 P	60	4 A	73.5	85	8.6	S W	107	10	4 A	8 P	0.86	
18	81	1 P	59	5 A	70.0	60	11.7	N W	202	25				
19	80	2 P	53	5 A	66.5	66	8.2	N W	175	32				
20	72	3 P	52	4 A	62.0	58	12.3	N W	253	25				
21	72	5 P	52	5 A	62.0	65	8.7	S W	69	7				
22	66	1 P	58	6 A	62.0	82	1.9	W	49	5				
23	79	3 P	48	4 A	63.5	72	8.8	S W	93	10				
24	88	5 P	55	6 A	71.5	76	8.7	S W	73	17				
25	91	5 P	66	6 P	78.5	76	10.8	N	127	14	1 A	4 A	0.49	
26	98	5 P	71	5 A	84.5	74	11.7	N W	117	10	9 P	10 P	0.26	
27	88	3 P	68	6 A	78.0	74	11.8	N E	83	9				
28	83	4 P	65	6 A	74.0	76	11.6	N E	98	7				
29	73	8 A	65	5 A	69.0	92	0.6	S	102	9	10 A	2 P	0.52	
30	77	3 P	58	6 A	67.5	68	10.3	N E	149	11				

*Based on least time required to blow one mile.

HANS JOA, *Observer*

MONTHLY SUMMARY

JUNE 1952		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.288, 30th	30.30	30.70, 1947
Minimum	29.542, 10th	29.55	29.24, 1902
Mean semi-daily	29.885	29.95	
Range	0.746	0.75	
Air Temperature, in degrees F.			
Highest	98, 26th	91.2	101, 1919
Lowest	48, 3rd, 23rd	40.0	34, 1891
Mean	68.8	65.7	
Range	50	51.3	
Highest mean daily	84.5, 26th		
Lowest mean daily	62; 20th, 21st, 22nd		
Mean maximum	80.7		
Mean minimum	60.0		
Greatest daily range	37, 15th		
Least daily range	8, 1st, 22nd, 29th		
Degree-days of heating load for month	14		
Degree-days cumulative for season	6223		
Precipitation, in inches			
Precipitation	4.97	3.75	9.68, 1922; 0.76, 1908
Snow			
Maximum precip. in 24 hrs.	2.70, 1st		
Number of days with .01 or more	9	11	17, 1922, 1945; 4, 1908
Wind, in miles			
Total movement	3834	3585	4571, 1908; 1409, 1906
Greatest daily movement	257, 12th		
Least daily movement	49, 22nd		
Mean hourly velocity	5.3	5.0	
Maximum velocity	32, 19th	24.6	48, 1939
Wind, direction			
Prevailing direction	W	WSW	
North, days	5		
Northeast, days	3		
East, days	0		
Eoutheast, days	0		
South, days	4		
Southwest, days	6		
West, days	5		
Northwest, days	7		
Weather			
Mean relative humidity, percent	71.3	66.9	
Mean cloudiness, percent	43.2	51.1	71, 1903; 28, 1908
Number of clear days	14	10	22, 1908, 1941, 1943; 0, 1949
Number of fair days	12	12	23, 1912; 3, 1941
Number of cloudy days	4	8	22, 1903; 1, 1923
Number of hours bright sunshine	265.6	257	365, 1947; 102, 1903
Percent of possible hours of bright sunshine	58.1	54.0	
Thunder and lightning	17th, 25th, 26th		

Note—The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column lists extremes observed from 1889 to 1951.

REMARKS

Total precipitation for the month was 4.97 inches of which 2.70 inches occurred on the first day. The storm starting May 31 accumulated 2.76 inches of rain in less than 12 hours.

Good weather prevailed throughout most of the month with only four cloudy days. Bright sunshine occurred 58.1 percent of the possible hours, the normal for the month being 54 percent.

As in the preceding month, the mean relative humidity remained high. A high temperature of 98° occurred on the 26th with a mean of 84.5° for the day.

The total wind movement was high with 3834 miles of total movement compared to a normal of 3,585.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 763 July 1952

Meteorological Observations

FOR

JULY

1952

ROBERT K. PATTERSON

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean									
	Degrees	Time	Degrees	Time				Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	83	5 P	50	5 A	66.5	62	12.1	N	65	9				
2	86	2 P	51	5 A	68.5	61	11.2	W	57	8				
3	90	3 P	58	5 A	74.0	70	11.1	S W	134	25				
4	89	1 P	68	2 A	78.5	81	9.2	S	122	17	4 P	6 P	0.73	
5	86	7 P	69	7 A	77.5	72	11.1	N	72	20				
6	91	4 P	58	6 A	74.5	66	11.6	W	38	6				
7	91	3 P	60	4 A	75.5	67	11.4	W	44	11				
8	86	4 P	62	7 A	74.0	70	8.7	S W	106	11				
9	78	2 P	68	4 A	73.0	74	—	S E	131	20				
10	69	1 P	66	6 A	67.5	93	—	N E	124	32	7 A	5 P	2.01	
11	85	7 P	64	6 A	74.5	73	8.7	N	88	7	6 A	7 A	0.03	
12	90	5 P	59	7 A	74.5	81	10.8	S W	33	4				
13	91	3 P	55	5 A	73.0	70	11.3	N W	44	5				
14	95	4 P	62	6 A	78.5	73	11.7	S	66	9				
15	92	2 P	70	6 A	81.0	70	11.1	S	154	11				
16	89	3 P	72	5 A	80.5	66	10.9	N W	144	11				
17	88	6P	64	6 A	76.0	66	11.8	S	66	6				
18	93	2 P	66	6 A	79.5	69	10.6	W	37	14				
19	88	4 P	73	6 A	80.5	70	9.2	W	157	25	0 A	2 A	0.03	
20	90	2 P	71	5 A	80.5	66	10.1	W	106	14				
21	82	6 P	68	5 A	75.0	82	5.7	S E	39	4				
22	93	6 P	72	6 A	82.5	75	10.4	S W	137	17				
23	95	4 P	64	5 A	79.5	67	11.0	S E	94	9				
24	82	4 P	71	7 A	76.5	60	10.4	W	128	14				
25	79	6 P	52	4 A	65.5	65	11.7	S	113	7				
26	88	5 P	51	6 A	69.5	65	11.5	S E	111	10				
27	87	4 P	66	6 A	76.5	87	8.3	S	116	32	8 A	5 P	1.21	
28	87	2 P	59	5 A	73.0	82	5.1	S	40	6				
29	86	2 P	68	6 A	77.0	75	6.4	N W	129	20				
30	79	4 P	53	6 A	66.0	70	7.0	S	90	5				
31	85	1 P	62	3 A	73.5	88	3.2	N W	74	25	1 P	6 P	1.01	

*Based on least time required to blow one mile.

HANS JOA, *Observer*

MONTHLY SUMMARY

JULY 1952		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.353, 1st	30.27	30.50, 1892
Minimum	29.750, 19th	29.59	29.27, 1932
Mean semi-daily	30.062	29.96	
Range	0.603	0.68	0.97, 1892; 0.47, 1938
Air Temperature, in degrees F.			
Highest	95, 14th, 23rd	93.9	104, 1911
Lowest	50, 1st	46.4	40, 1890, 1898
Mean	75	70.8	66.3, 1891; 76.0, 1949
Range	45	47.7	
Highest mean daily	82.5, 22nd		
Lowest mean daily	65.5, 25th		
Mean maximum	86.9		
Mean minimum	63		
Greatest daily range	37, 26th		
Least daily range	3, 10th		
Degree-days of heating load for month			
Degree-days cumulative for season			
Precipitation, in inches			
Precipitation	4.99	4.10	14.51, 1897; 0.70, 1929
Snow	—		
Maximum precip. in 24 hrs.	2.01, 10th		
Number of days with .01 or more	5	11	20, 1915; 4, 1924
Wind, in miles			
Total movement	2919	3422	5097, 1909; 1109, 1894
Greatest daily movement	157, 19th		
Least daily movement	33, 12th		
Mean hourly velocity	3.92	4.6	
Maximum velocity	32, 10th	28.7	44, 1936
Wind, direction			
Prevailing direction	S	SW	
North, days	3		
Northeast, days	1		
East, days	—		
Southeast, days	4		
South, days	8		
Southwest, days	4		
West, days	7		
Northwest, days	4		
Weather			
Mean relative humidity, percent	72	68.4	
Mean cloudiness, percent	36.6	50.9	70, 1943; 31, 1924
Number of clear days	16	10	22, 1923; 0, 1915
Number of fair days	12	14	24, 1909, 1921; 4, 1946
Number of cloudy days	3	7	18, 1889; 0, 1910
Number of hours bright sunshine	284.2	268	371, 1910; 180, 1931
Percent of possible hours of bright sunshine	61.3	58	
Thunder and lightning	4, 10, 27, 31		

Note—The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column gives extremes observed from 1889 to 1951.

WEATHER SUMMARY

The highest temperature for the month was 95°which occurred on the 14th and 23rd, and the lowest was 50°F. on the first. The mean temperature was 75°, the normal for the month being 70.8°. The highest mean daily temperature was 82.5°F., and the lowest mean daily 65.5°F. The greatest daily temperature was 37°F. on the 26th, and the least daily range was 3°F. on the tenth.

The rainfall was slightly above normal for the month with 4.99 inches of precipitation, the normal for the month being 4.10 inches. Of the 4.99 inches of rainfall for the month, 2.01 inches fell in an eleven-hour period on the 10th.

A wind velocity of 32 MPH occurred on the 10th, and the total wind movement for the month was 2919 miles. The mean relative humidity of 72 was above the normal of 68.4. The per cent of possible hours of bright sunshine recorded 61.3 was above the normal of 58. The number of clear days for the month was 16, the normal being 10. Five thunder and lightning storms occurred during the month.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 764 August 1952

Meteorological Observations

FOR

AUGUST

1952

ROBERT K. PATTERSON

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	82	5 P	57	4 A	69.5	75.7	5.1	W	42	8				
2	75	4 P	56	5 A	65.5	86.0	0	S E	38	6				
3	86	3 P	62	6 A	74.0	76.0	7.9	S W	34	6				
4	86	3 P	62	5 A	74.0	82.5	4.5	S E	92	17				
5	87	2 P	64	0 A	75.5	86.3	1.1	S E	149	10	2 P	3 P	0.12	
6	75	3 P	56	6 A	65.5	98.0	0	N W	57	5	6 A	8 P	0.13	
7	82	3 P	65	6 A	73.5	80.0	5.5	S	38	8	0 A	1 A	0.03	
8	77	3 P	59	6 A	68.0	83.7	0	E	25	5				
9	82	4 P	52	3 A	67.0	76.3	6.2	E	57	17				
10	70	8 P	62	9 A	66.0	96.7	0	N W	49	6	4 A	5 P	0.57	
11	86	4 P	58	3 A	72.0	82.3	7.7	W	49	7	0 A	1 A	0.03	
12	79	3 P	54	5 A	66.5	94.3	0	W	38	5	6 A	12 P	0.80	
13	84	4 P	55	5 A	69.5	81.0	7.6	W	71	17	0 A	5 A	0.96	
14	79	6 P	56	6 A	67.5	80.3	7.4	S W	58	14				
15	86	4 P	54	6 A	70.0	78.7	6.7	S E	64	20				
16	76	1 P	52	0 A	64.0	90.7	0	S E	144	17	1 P	8 P	0.38	
17	84	2 P	69	5 A	76.5	81.0	8.1	W	201	18	0 A	4 A	0.74	
18	80	4 P	58	7 A	69.0	75.3	9.1	W	93	11				
19	79	5 P	53	6 A	66.0	73.3	8.2	N W	52	10				
20	81	4 P	49	6 A	65.0	74.0	7.8	S	28	5				
21	76	1 P	54	6 A	65.0	84.0	1.3	S E	98	10	9 P	11 P	0.21	
22	78	1 P	60	3 A	69.0	77.7	6.1	W	159	25				
23	72	5 P	45	5 A	58.5	63.0	6.4	W	148	20				
24	75	5 P	43	7 A	59.0	69.3	6.4	N W	133	18				
25	81	3 P	46	6 A	63.5	71.6	4.1	W	43	8				
26	89	4 P	52	6 A	70.5	78.6	4.7	S	37	5				
27	91	4 P	60	6 A	75.5	78.6	4.7	S	34	5				
28	86	3 P	64	7 A	75.0	77.7	2.6	S	73	6				
29	89	3 P	68	3 A	78.5	80.3	5.6	S W	124	11				
30	77	12 N	70	6 A	73.5	81.0	0.3	E	113	13	6 A	7 A	0.01	
31	71	1 P	59	6 A	65.0	77.3	0	E	57	8				

*Based on least time required to blow one mile.

HANS JOA, *Observer*

MONTHLY SUMMARY

AUGUST 1952		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.310, 31st	30.32	30.50, 1934
Minimum	29.678, 17th	29.61	28.87, 1930
Mean semi-daily	30.030	30.00	
Range	0.632	0.71	
Air Temperature, in degrees F.			
Highest	91, 27th	91.6	100, 1918, 1948
Lowest	43, 24th	43.4	34, 1940
Mean	68.95	68.6	62.4, 1903
Range	48	48.1	
Highest mean daily	78.5, 29th		
Lowest mean daily	58.5, 23rd		
Mean maximum	80.7		
Mean minimum	57.2		
Greatest daily range	35, 25th		
Least daily range	7, 30th		
Precipitation, in inches			
Precipitation	3.98	4.08	8.40, 1948; 0.31, 1894
Snow	—		
Maximum precip. in 24 hrs.	0.96, 13th		
Number of days with .01 or more	11	11	16, 1892, 1933; 4, 1899
Wind, in miles			
Total movement	2392	3127	4,217, 1910; 1,920, 1894
Greatest daily movement	201, 17th		
Least daily movement	25, 8th		
Mean hourly velocity	3.21	4.2	
Maximum velocity	25, 22nd	22.7	40, 1941
Wind, direction			
Prevailing direction	WSW	SW	
North, days	—		
Northeast, days	—		
East, days	4		
Southeast, days	6		
South, days	5		
Southwest, days	3		
West, days	9		
Northwest, days	4		
Weather			
Mean relative humidity, percent	80.4	70.2	
Mean cloudiness, percent	49.4	49.7	67, 1901, 1946; 27, 1923
Number of clear days	—	9	23, 1941; 0, 1915, 1929
Number of fair days	18	13	25, 1912; 3, 1939
Number of cloudy days	13	9	18, 1901, 1928; 2, 1910, 1923
Number of hours bright sunshine	135.1	237	332, 1941; 152, 1915, 1929
Percent of possible hours of bright sunshine	31.4	55.2	
Thunder and lightning	5th		

Note—The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column lists extremes observed from 1889 to 1951.

REMARKS

The weather for August was normal. The mean temperature was 68.95° with a precipitation of 3.98 inches. Although the weather conditions were normal for the month, the serious summer drought experienced by eastern and southern states carried into the early part of August and was ended by heavy rains, wind storms, and hail between the 10th and the 17th of the month. The storms were localized and did a great deal of damage to the farm crops and buildings in the areas affected.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 765 September 1952

Meteorological Observations

FOR

SEPTEMBER

1952

I. J. PFLUG

OBSERVATORY

Latitude, 42° 23′ 31″ N. Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft. Above sea level, 253.5 ft.
Height of wind instruments, 67 ft. Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
Day	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	73	8 P	61	6 A	67.0	93.3	—	E	90	17	2P	10 P	1.43	
2	88	4 P	63	6 A	75.5	79.7	8.0	SE	149	12				
3	74	6 P	69	8 A	71.5	85.0	0.2	W	—	20	11A	12 N	0.02	
4	76	4 P	49	7 A	62.5	76.3	8.8	W	90	14				
5	81	4 P	49	7 A	65.0	78.7	3.1	S	37	6				
6	84	3 P	52	7 A	68.0	76.0	7.8	S	86	11				
7	68	4 P	52	7 A	60.0	69.3	5.9	N	192	11				
8	68	4 P	43	7 P	55.5	78.3	3.3	NW	68	4				
9	73	2 P	43	7 A	58.0	78.0	8.0	SE	78	5				
10	84	4 P	47	7 A	65.5	79.0	7.8	SE	35	3				
11	88	4 P	54	6 A	71.0	82.3	1.1	E	54	9				
12	89	3 P	60	6 A	74.5	79.3	5.3	SE	33	7				
13	89	3 P	62	4 A	75.5	78.7	4.3	N	78	12				
14	72	10 A	60	11 A	66.0	90.0	—	E	88	8				
15	61	4 P	55	6 A	58.0	92.3	—	SE	91	7	6 P	10 P	10	
16	77	2 P	54	8 A	65.5	77.0	—	SE	76	12				
17	74	4 P	48	7 A	61.0	76.3	—	SW	61	11				
18	78	2 P	45	—	61.5	84.7	—	S	63	13				
19	77	10 A	66	8 A	71.5	93.3	—	S	146	13	4 A	6 P	2.13	
20	73	4 P	60	8 A	66.5	79.0	0.9	NW	70	14				
21	72	2 P	46	7 A	59.0	76.7	2.8	W	34	6				
22	68	2 P	45	6 A	56.5	82.3	2.4	W	57	5				
23	59	5 P	50	7 A	54.5	94.7	—	N	72	9	10 A	12 N	0.12	
24	63	5 P	45	7 A	54.0	94.7	—	SW	33	5				
25	71	4 P	48	6 A	59.5	88.0	3.0	SW	43	6				
26	75	2 P	51	6 A	63.0	83.3	3.7	S	126	20	5 P	7 P	0.25	
27	67	4 P	42	7 A	54.5	79.7	5.7	NW	88	9				
28	73	3 P	37	6 A	55.0	78.3	0.2	NW	36	5				
29	80	3 P	42	7 A	61.0	79.3	2.4	S	40	5				
30	75	1 P	46	7 A	60.5	81.0	0.6	NE	76	14				

* Based on least time required to blow one mile.

Hans Joa, *Observer*

MONTHLY SUMMARY

SEPTEMBER 1952		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.162	30.45	30.65, 1924
Minimum	29.990	29.57	28.41, 1938
Mean semi-daily	30.090	30.00	
Range	0.172	.88	1.99, 1938; 57, 1910
Air Temperature, in Degrees F.			
Highest	89, 12th, 13th	87.7	97, 1895, 1929
Lowest	37 28th	33.2	24.5, 1914
Mean	63.2	61.7	
Range	52.0	54.5	
Highest mean daily	75.5, 2nd, 13th		
Lowest mean daily	54.0, 24th		
Mean maximum	75.0		
Mean minimum	51.5		
Greatest daily range	38, 29th		
Least daily range	5, 3rd		
Degree-days of heating load for month	111.0		
Degree-days cumulative for season	111.0		
Precipitation, in inches			
Precipitation	4.05	4.24	14.55, 1938; 0.52, 1914
Snow	—		
Maximum precip. in 24 hrs.	2.13, 19th		
Number of days with .01 or more	6	10	16, 1933; 3, 1903
Wind, in miles			
Total movement	2190	3271	4.680, 1896; 1414, 1894
Greatest daily movement	192. 7th		
Least daily movement	33, 12th, 24th		
Mean hourly velocity	3.15	4.5	
Maximum velocity	20, 3rd, 26th	25.9	80, 1938
Wind direction			
Prevailing direction	ESW	WSW	
North, days	3		
Northeast, days	1		
East, days	3		
Southeast, days	5		
South, days	6		
Southwest, days	4		
West, days	4		
Northwest, days	4		
Weather			
Mean relative humidity, percent	82.2	73.6	
Mean cloudiness, percent	44.5	49.9	70, 1934; 23. 1947
Number of clear days	1	10	19. 1932; 2. 1907, 1928
Number of fair days	8	10	19, 1908, 3, 1889
Number of cloudy days	21	10	20. 1934; 3, 1941. 1948
Number of hours bright sunshine	85.3	201	255. 1916; 106, 1934
Percent of possible hours of bright sunshine	22.8	54.9	
Thunder and lightning	19th, 26th		
First Frost		Sept. 21	Oct. 13, 1909; Aug. 22, 1894-95

Note — The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column lists extremes observed from 1889 to 1951.

REMARKS

The mean daily temperature for the month of September was 1.5 degrees above normal and the mean relative humidity 8.6 percent above normal. The number of hours of bright sunshine was 84 compared to a normal of 201. All these factors made the month of September seem unusually warm and in many cases uncomfortable. There was no frost during the month of September.

PUBLICATION OF THIS DOCUMENT APPROVED BY GEORGE J CRONIN, STATE PURCHASING AGENT

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 766 October 1952

Meteorological Observations

FOR

OCTOBER

1952

I. J. PFLUG

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

	Temperature							Wind			Precipitation			
	Maximum		Minimum											
Day	Degrees	Time	Degrees	Time	Mean	Mean Relative Humidity	Number of Hours Bright Sunshine †	Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	73	4 P	40	7 A	56.5	80.7		N	54	5				
2	71	4 P	55	1 A	63.0	93.3		SE	102	25	6 P	12 P	0.50	
3	53	2 P	48	8 A	50.5	85.0		NW	160	20	0 A	8 A	0.18	
4	64	4 P	38	7 A	51.0	72.0		SW	139	10				
5	73	4 P	45	7 A	59.0	77.3		SE	122	13				
6	76	3 P	56	7 A	66.0	79.3		S	80	5				
7	65	3 P	58	8 A	61.5	88.3		NW	120	20	8 A	12 N	0.39	
8	59	3 P	33	7 A	46.0	75.3		NW	63	14				
9	61	2 P	32	7 A	46.5	79.3		NW	14	4				
10	59	4 P	38	8 A	48.5	71.3		N	97	14				
11	57	2 P	31	8 A	44.0	78.0		E	62	8				
12	64	4 P	31	8 A	47.5	71.7		E	–	5				
13	70	4 P	38	6 A	54.0	74.3		S	83	10				
14	71	4 P	53	8 A	62.0	67.0		W	118	20				
15	67	3 P	37	8 A	52.0	80.0		N	–	–				
16	64	4 P	49	8 A	56.5	68.3		W	–	–				
17	60	2 P	33	8 A	46.5	68.0		W	66	25				
18	59	4 P	35	7 A	47.0	70.3		S	40	13				
19	59	2 P	45	7 A	52.0	61.3		W	118	25				
20	48	2 P	28	7 A	38.0	63.7		NW	174	25				
21	53	3 P	27	6 A	40.0	65.0		NW	163	20				
22	64	3 P	34	7 A	49.0	61.3		SS	84	10				
23	65	4 P	31	7 A	48.0	57.7		S	90	9				
24	65	2 P	44	8 A	54.5	57.7		W	194	32				
25	53	3 P	38	8 A	45.5	61.0		NW	215	32				
26	56	3 P	21	7 A	38.5	70.7		SE	61	8				
27	65	3 P	40	2 A	52.5	73.0		SE	193	14				
28	58	1 P	54	1 A	56.0	79.7		SE	211	20				
29	42	0 P	32	6 A	37.0	64.7		NW	242	25				
30	52	1 P	32	0 A	42.0	59.0		SW	139	14				
31	66	2 P	40	7 A	53.0	47.0		SE	140	13				

* Based on least time required to blow one mile.

Hans Joa, *Observer*

† Sunshine Indicator not working.

MONTHLY SUMMARY

OCTOBER 1952		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.375, 26th	30.53	30.68, 1929
Minimum	29.614, 28th, 29th	29.42	29.00, 1926
Mean semi-daily	30.024	30.06	
Range	0.761	1.11	1.47, 1926; 0.76, 1899
Air Temperature, in Degrees F.			
Highest	76.0, 6th	79.4	90.5, 1908
Lowest	21.0, 26th	23.4	17, 1936
Mean	50.6	50.5	57.4, 1947; 43.2, 1890
Range	55.0	56.0	
Highest mean daily	66.0, 6th		
Lowest mean daily	37.0, 29th		
Mean maximum	61.7		
Mean minimum	39.2		
Greatest daily range	35.0, 26th		
Least daily range	40, 28th		
Degree-days of heating load for month	446		
Degree-days cumulative for season	557		
Precipitation, in inches			
Precipitation	1.07	3.29	8.81, 1911; 0.01, 1924
Snow	—		
Maximum precip. in 24 hrs.	0.50		
Number of days with .01 or more	3	9	15, 1913; 1, 1897, 1924
Wind, in miles			
Total movement	3344 28 days	4074	5467, 1910; 2540, 1894
Greatest daily movement	242, 29th		
Least daily movement	14, 9th		
Mean hourly velocity	4.98	5.4	
Maximum velocity	32. mph., 24th	29.5	42, 1937
Wind, direction			
Prevailing direction	NW	W	
North, days	3		
Northeast, days	–		
East, days	2		
Southeast, days	6		
South, days	4		
Southwest, days	3		
West, days	5		
Northwest, days	8		
Weather			
Mean relative humidity, percent	71.0	69.0	
Mean cloudiness, percent	31.9	48	67, 1932; 18, 1924
Number of clear days	19	10	21, 1938; 1, 1911
Number of fair days	5	10	17, 1924; 3, 1938
Number of cloudy days	7	11	19, 1896, 3, 1924
Number of hours bright sunshine	–	175.0	232, 1923, 1938; 91, 1913
Percent of possible hours of bright sunshine	–	51.3	
Thunder and lightning	2nd		
First Frost	11th		

Note — The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column lists extremes observed from 1889 to 1951.

REMARKS

The outstanding feature of the October weather was the small amount of rainfall, all of which occurred in the first seven days of the month.

The lack of rainfall created very dry woodland conditions, resulting in many forest fires.

The first general frost occurred on October 11. Temperatures for the month were normal; the number of degree days for the month was 446, and the total accumulative degree days for the heating season was 557.

PUBLICATION OF THIS DOCUMENT APPROVED BY GEORGE J CRONIN, STATE PURCHASING AGENT
908308P

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 767 November 1952

Meteorological Observations

FOR

NOVEMBER

1952

I. J. PFLUG

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	69	3 P	41	7 A	55.0	43.7	7.0	W	142	17				
2	68	3 P	33	7 A	50.5	63.3	5.9	W	54	8				
3	54	2 P	46	12 P	50.0	75.0	0.0	S	95	14	1 P	3 P	0.02	
4	48	3 P	26	12 P	37.0	57.0	7.7	NW	163	17				
5	51	2 P	20	7 A	35.5	66.3	6.8	NW	64	8				
6	57	1 P	40	3 A	48.5	62.3	5.2	W	173	25				
7	44	2 P	34	12 P	39.0	63.7	1.6	W	194	25				
8	44	12 M	24	12 P	34.0	89.7	5.8	NW	120	28			T	
9	32	4 P	18	6 A	25.0	100.0	0.4	NW	3	1	1 P	7 P	0.13	1.0
10	46	3 P	30	12 P	38.0	83.7	2.4	NW	29	15				
11	43	4 P	26	4 A	34.5	75.3	4.1	NW	7	4				
12	43	11 A	24	7 A	33.5	68.7	5.7	NW	172	32				
13	47	3 P	24	5 A	35.5	81.0	5.6	NW	16	5				
14	52	4 P	20	7 A	36.0	78.0	6.3	NW	17	7				
15	47	8 P	34	1 A	40.5	95.0	0.0	NW	17	1	5 P	10 P	0.10	
16	56	3 P	44	4 A	50.0	86.3	2.3	NW	50	6				
17	50	0 A	37	12 P	43.5	82.3	0.1	NE	61	9				
18	49	3 P	29	12 P	39.0	83.7	3.9	NE	39	7				
19	41	3 P	24	1 A	32.5	91.0	1.9	NE	24	2				
20	45	8 P	38	2 A	41.5	91.7	0.0	NE	39	5	9 A	12 M	0.07	
21	55	12 M	43	0 A	49.0	79.7	1.1	E	125	13				
22	52	12 P	47	0 A	49.5	89.0	0.0	E	195	25	11 A	9 P	0.54	
23	55	12 M	40	12 P	47.5	80.3	3.4	S	39	9	1 A	2 A	0.02	
24	53	3 P	32	8 A	42.5	76.3	5.7	S	73	20				
25	45	2 P	27	7 A	36.0	81.0	3.4	NW	11	2				
26	50	3 P	34	1 A	42.0	83.0	0.0	W	60	12				
27	56	4 P	41	12 P	48.5	73.7	4.4	NW	96	10	0 A	1 A	0.01	
28	41	0 A	30	12 P	35.5	65.3	5.6	NW	154	25				
29	40	2 P	23	7 A	31.5	70.0	6.6	NW	81	9				
30	38	2 P	25	0 A	31.5	73.7	5.3	NW	96	25				

* Based on least time required to blow one mile.

HANS JOA, *Observer*

MONTHLY SUMMARY

NOVEMBER 1952		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.46	30.59	30.87, 1932
Minimum	29.43	29.30	28.73, 1904
Mean semi-daily	30.10	30.05	
Range	1.03	1.29	1.84, 1904; 0.89, 1943
Air Temperature, in Degrees F.			
Highest	69, 1st	66.0	82, 1950
Lowest	18, 9th	12.9	-4, 1938
Mean	40.4	38.9	44.1, 1931; 33.6, 1901
Range	51.0	53.0	
Highest mean daily	55.0, 1st		
Lowest mean daily	25.0, 9th		
Mean maximum	49.0		
Mean minimum	31.8		
Greatest daily range	35, 2nd		
Least daily range	5, 22nd		
Degree-days of heating load for month	737	783	
Degree-days cumulative for season	1294		
Precipitation, in inches			
Precipitation	0.89	3.41	8.64, 1927; 0.63, 1917
Snow	1.00	2.34	13.50, 1938
Maximum precip. in 24 hrs.	0.54		
Number of days with .01 or more	7	9	22, 1921; 2, 1904
Wind, in miles			
Total movement	2409	4531	5,978, 1906; 2,589, 1889
Greatest daily movement	195, 22nd		
Least daily movement	3, 9th		
Mean hourly velocity	3.3	6.3	
Maximum velocity	32, 12th	30.3	48, 1948, 1950
Wind, direction			
Prevailing direction	NW	WNW	
North, days	–		
Northeast, days	4		
East, days	2		
Southeast, days	–		
South, days	3		
Southwest, days	–		
West, days	5		
Northwest, days	16		
Weather			
Mean relative humidity, percent	77.0	70.6	
Mean cloudiness, percent	56.7	55.1	78, 1947; 34, 1917
Number of clear days	2	6	15, 1903; 0, 1948
Number of fair days	16	9	16, 1912; 4, 1889, 1930, '32, '35
Number of cloudy days	12	15	24, 1927; 9, 1905, 1917, 1949
Number of hours bright sunshine	108.2	121	182, 1903; 44, 1948
Percent of possible hours of bright sunshine	36.9	41.3	
Thunder and lightning	...		
First Snow	8th	Nov. 6	Oct. 10, 1925; Nov. 27, 1931

Note — The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column lists extremes observed from 1889 to 1951.

REMARKS

The mean daily air temperature during the month of November was above normal; the degree days for the month were 737 compared to the normal of 783.

Precipitation for the month was 0.89 inches compared to the normal of 3.41 inches.

The mean relative humidity for the month was 77.0 per cent, mean cloudiness 56.7 per cent; there were 108.2 hours of bright sunshine during November.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 768 December 1952

Meteorological Observations

FOR

DECEMBER

1952

I. J. PFLUG

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	32	3 P	18	8 A	25.0	70.0	6.8	NW	133	17				
2	28	4 P	16	6 A	22.0	89.0	0.0	N	35	7				
3	42	3 P	22	1 A	32.0	77.3	5.4	N	130	11				
4	45	3 P	19	7 A	32.0	77.0	6.6	NE	81	8				
5	44	8 P	25	3 A	34 5	95.7	0 0	NE	74	13	1 A	12 P	1.12	
6	43	1 P	29	7 A	36.0	77.3	3.2	NW	135	17	0 A	1 A	0.09	
7	46	3 P	29	8 A	37.5	83.0	5.8	NW	61	17				
8	38	4 P	22	6 A	30.0	94.3	1.9	NW	10	4				
9	44	2 P	34	1 A	39.0	84.3	2.3	NW	17	4				
10	48	12 P	40	4 A	44.0	85.3	0.0	NW	71	14				
11	60	1 P	40	12 P	50.0	95.3	0.0	SE	249	25	4 A	12 P	2.10	T
12	40	0 A	33	8 A	36.5	84.7	0.7	NW	140	25	0 A	M	0.76	
13	40	2 P	29	12 P	34.5	74.7	5.6	SW	134	17				
14	41	M	27	0 A	34.0	62.7	3.9	S	102	10				
15	35	3 P	17	7 A	26.0	73.0	5.4	W	53	7				
16	41	2 P	25	0 A	33.0	78.7	2.5	SW	141	20			T	T
17	48	3 P	32	7 A	40.0	63.0	5.8	W	144	10				
18	41	M	26	12 P	33.5	65.0	4.0	S	125	20				
19	37	2 P	19	7 A	28 0	73.3	6.6	NW	74	20				
20	35	2 P	15	7 A	25.0	77.7	6.1	N	36	3				
21	34	8 P	28	2 A	31.0	77.0	0.0	N	56	10				
22	35	2 A	29	8 A	32.0	79.0	0.0	N	180	12			T	T
23	34	8 P	29	0 A	31.5	95.0	0.0	N	199	10	3 A	6 A	0.03	
24	48	1 P	29	3 A	38.5	75.3	1.6	N	89	22			T	
25	43	M	38	12 P	40.5	60.7	0.0	W	186	17				
26	42	1 P	32	10 P	37.0	65.3	2.6	W	206	25				
27	38	M	30	8 A	34.0	68.7	6.0	W	202	32				
28	24	3 P	5	4 A	14.5	71.7	6.2	NW	202	13				
29	37	4 P	10	7 A	23.5	80.0	5.8	NW	36	17				
30	40	3 P	27	8 A	33.5	78.3	1.2	S	56	10				
31	29	1 A	18	8 A	23.5	81.7	0.0	NW	114	14				

* Based on least time required to blow one mile.

HANS JOA, *Observer*

MONTHLY SUMMARY

DECEMBER 1952		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.595, 4th	30.66	31.104, 1949
Minimum	29.431, 11th	29.27	28.85, 1915
Mean semi-daily	30.056	30.06	
Range	1.164	1.38	1.78, 1895, 1.01, 1892
Air Temperature, in degrees F.			
Highest	60, 11th	54.3	65.5, 1908
Lowest	5, 28th	1.09	—22.5, 1917
Mean	32.6	27.5	36.9, 1891; 17.1, 1917
Range	55	56.2	
Highest mean daily	50.0		
Lowest mean daily	14.5		
Mean maximum	39.7		
Mean minimum	25.5		
Greatest daily range	26, 4th		
Least daily range	5, 23rd		
Degree-days of heating load for month	998	1162.5	
Degree-days cumulative for season	2292	2494.0	
Precipitation, in inches			
Precipitation	4.10	3.39	7.77, 1901; .58, 1943
Snow	T	8.50	26.50, 1902, T, 1891, 1943
Maximum precip. in 24 hrs.	2.10, 11th		
Number of days with .01 or more	5	10	17, 1902; 4, 1892, 1943
Wind, in miles			
Total movement	3471	4710	6694, 1925; 3239, 1918
Greatest daily movement	249, 11th		
Least daily movement	10, 8th		
Mean hourly velocity	4.6	6.3	
Maximum velocity	32, 27th	31.4	66, 1949
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	7		
Northeast, days	2		
East, days	–		
Southeast, days	1		
South, days	3		
Southwest, days	2		
West, days	5		
Northwest, days	11		
Weather			
Mean relative humidity, percent	77.8	69.4	
Mean cloudiness, percent	62.1	54.9	71, 1929; 39, 1919
Number of clear days	3	8	15, 1890; 0. 1948
Number of fair days	12	9	16, '09; 4, '89, '30, '31, '36, '38
Number of cloudy days	16	14	25, 1948; 7, '09, '23
Number of hours bright sunshine	96	128	172, 1896; 27, 1948
Percent of possible hours of bright sunshine	34.0	45.2	
Thunder and lightning	...		
First Snow	Nov. 8	Nov. 6	

Note — The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column lists extremes observed from 1889 to 1951.

ANNUAL SUMMARY

ANNUAL		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.660, Jan. 25th	30.81	31.10, 1949
Minimum	29.122, Mar. 11th	28.95	28.41, 1938
Mean semi-daily	29.979	30.01	
Range	1.538	1.85	2.47, 1938; 1.38, 1933
Air Temperature, in degrees F.			
Highest	98, June 26th	95.7	104, 1911
Lowest	—7, Jan. 30th	—12.2	—26, 1904
Mean	49.9	47.4	51.7, 1949; 44, 1904
Range	105	107.8	
Highest mean daily	84.5, June 26th		
Lowest mean daily	6.5 Jan. 30th		
Mean maximum	60.1	57.8	
Mean minimum	39.7	36.5	
Greatest daily range	45, April 22nd		
Least daily range	3, Jan. 6, 28, July 10		
Degree-days 1951-52 heating season	6223	6698	
Precipitation, in inches			
Precipitation	40.61	43.70	59.00, 1938; 30.68, 1908
Snow	38.3	47.78	89.00, 1893; 24.50, 1919
Maximum precip. in 24 hrs.	2.70, June 1st		
Number of days with .01 or more	97	124	146, 1945; 96, 1924
Wind, in miles			
Total movement	40,259	52,223	63,571, 1908; 36,257, 1894
Greatest daily movement	461, Feb. 12th		705, 1909
Least daily movement	3, Nov. 9th		
Mean hourly velocity	4.64	5.8	
Maximum velocity	40, Jan. 18th, Feb. 12th	39.5	80, 1938
Wind, direction			
Prevailing direction	NNW	W	
North, days	38		
Northeast, days	41		
East, days	13		
Southeast, days	40		
South, days	41		
Southwest, days	37		
West, days	44		
Northwest, days	112		
Weather			
Mean relative humidity, percent	76.6	67.6	
Mean cloudiness, percent	49.7	51.7	60, '98, '01, '02; 41, '08, '24
Number of clear days	92	116	217, 1941; 59, 1927
Number of fair days	146	123	182, 1912; 64, 1936
Number of cloudy days	127	126	179, '01, '02; 71, 1910, 1941
Number of hours bright sunshine	2134	2,353	3038, 1941; 1864, 1902
Percent of possible hours of bright sunshine	46.6	52.8	
Last snow	Mar. 19th	April 15	Mar. 14 '10; May 11, '07, '45
First snow	Nov. 8th	Nov. 6	Oct. 10, '25; Dec. 13, '41
Last frost	May 17th	May 14	Apr. 14, '43; June 8, '32
First frost	Oct. 11th	Sept. 21	Aug. 22, '94, '95; Oct. 13, '09

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 769 January 1953

Meteorological Observations

FOR

JANUARY

1953

I. J. PFLUG

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS

DAILY RECORDS

	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
Day	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	40	4 P	21	8 A	30.5	80.0	6.1	N	114	10				
2	38	8 P	16	7 A	27.0	92.3	1.6	N	19	6				
3	39	1 P	33	8 A	36.0	90.0	1.3	NW	111	17	0 A	M	1.01	T
4	36	3 P	24	12 P	30.0	66.0	6.3	NW	206	25				
5	36	3 P	17	8 A	26.5	78.0	6.6	NW	73	6				
6	32	4 P	18	11 P	25.0	74.7	2.7	S	118	28			T	0.1
7	31	3 P	19	8 A	25.0	78.7	62.	NW	52	5	5 A	8 A	0.04	1.8
8	24	4 P	19	8 A	21.5	94.0	1.8	NW	60	8	7 P	12 P	0.13	0.8
9	28	11 P	20	0 A	24.0	91.7	0	N	207	17	0 A	12 P	1.09	6.3
10	33	8 P	28	0 A	30.5	95.0	0	N	198	17	0 A	10 P	0.93	0.4
11	37	1 P	32	2 A	34.5	95.0	0.8	N	145	8	3 A	7 A	0.04	
12	37	4 A	24	12 P	30.5	60.3	3.9	NW	203	32			T	0.1
13	42	4 P	24	0 A	33.0	68.3	2.0	SE	113	13	2 A	8 A	0.02	0.4
14	44	3 P	22	7 A	33.0	86.0	5.6	S	17	7				
15	42	3 P	24	8 A	33.0	93.7	6.2	S	12	3				
16	47	2 P	26	12 P	36.5	85.7	0.9	NW	141	32				
17	28	7 P	13	8 A	20.5	75.3	9.4	NW	126	12				
18	49	2 P	24	0 A	36.5	97.0	3.6	NW	38	12	0 A	8 A	0.70	
19	42	4 P	28	7 A	35.0	78.3	3.2	NW	32	11				
20	40	2 P	31	4 A	35.5	80.7	1.5	NW	11	5				
21	39	2 P	30	12 P	34.5	79.7	0.4	NW	75	10	5 P	11 P	0.17	1.4
22	42	3 P	26	9 A	34.0	81.7	7.4	N	109	11				
23	35	2 P	16	7 A	25.5	88.3	1.5	N	14	5				
24	52	8 P	33	0 A	42.5	97.3	0	S	94	20	2 A	7 P	1.36	
25	48	0 A	21	12 P	34.5	69.7	2.1	W	274	39	2 A	4 A	0.19	
26	30	2 P	15	12 P	22.5	58.0	7.0	NW	327	28				
27	22	12 P	11	6 A	16.5	83.3	1.6	NW	25	3	7 P	12 P	0.05	0.5
28	41	3 P	22	0 A	31.5	89.7	1.1	NW	107	25	1 A	11 A	0.51	
29	39	3 P	26	7 A	32.5	73.3	7.0	NW	159	20				
30	32	12 P	20	8 A	26.0	67.7	6.6	NW	127	14				
31	48	3 P	32	0 A	40.0	80.6	4.8	S	184	20			T	

* Based on least time required to blow one mile.

HANS JOA, *Observer*

MONTHLY SUMMARY

JANUARY 1953		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.605, 17th	30.70	31.00, 1927
Minimum	29.039, 25th	29.20	28.55, 1913
Mean semi-daily	29.994	30.07	
Range	1.566	1.50	2.18, 1913; 0.97, 1896
Air Temperature, in degrees F.			
Highest	52, 24th	51.1	66.0, 1932
Lowest	11, 27th	—7.1	—26.0, 1904
Mean	30.4	24.2	34.2, 1913; 13.9, 1918
Range	41	58.2	
Highest mean daily	42.5, 24th		
Lowest mean daily	16.5, 27th		
Mean maximum	37.8		
Mean minimum	23.1		
Greatest daily range	27, 25th		
Least daily range	5, 8th, 10th, 11th		
Degree-days of heating load for month	1071	1265	
Degree-days cumulative for season	3363		
Precipitation, in inches			
Precipitation	6.24	3.61	7.15, 1898; 1.07, 1896
Snow	11.8	13.32	33, 1898, 1923 1.50, '08
Maximum precip. in 24 hrs.	1.36		
Number of days with .01 or more	13	11	17, '50, '20; 4, 1901
Wind, in miles			
Total movement	3491	5055	7770, 1908; 2896, 1895
Greatest daily movement	327, 26th		
Least daily movement	11, 20th		
Mean hourly velocity	4.07	6.8	
Maximum velocity	39, 25th	32.7	47, 1938
Wind, direction			
Prevailing direction	NNW	WNW	
North, days	7		
Northeast, days			
East, days			
Southeast, days	1		
South, days	5		
Southwest, days			
West, days	1		
Northwest, days	17		
Weather			
Mean relative humidity, percent	81.6	70.1	
Mean cloudiness, percent	59.2	55	78, 1932; 37, 1908
Number of clear days	10	9	20, 1944; 1, 1949
Number of fair days	6	9	18, 1890, 1926; 3, 1916, 1944
Number of cloudy days	15	13	22, 1923, '31, '49; 4, 1920, '39
Number of hours bright sunshine	109.2	137	214, 1920; 50.4, 1949
Percent of possible hours of bright sunshine	37.1	46.7	
Thunder and lightning			

Note — The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column lists extremes observed from 1889 to 1952.

REMARKS

The weather during the month of January was exceptionally mild. This abnormal weather is reflected in the mean daily temperature, which is 6.2 degrees above normal, and the degree days for the month which are 1071, compared to a normal of 1265.

The precipitation for January was 6.24 inches, compared to the normal of 3.61 inches.

The mean relative humidity was 81.6 percent, mean cloudiness 59.2 percent. Snowfall and snow accumulation were both below normal.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 770 February 1953

Meteorological Observations

FOR

FEBRUARY

1953

I. J. PFLUG

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	46	0 A	10	12 P	28.0	59.7	7.0	NW	411	48	—	—	0.02	T
2	24	8 P	7	6 A	15.5	58.7	6.0	NW	146	25				
3	29	8 P	21	7 A	25.0	95.3	0.0	SE	49	8	1 A	11 A	0.32	3.6
4	36	4 P	17	12 P	26.5	75.3	6.2	N	182	20				
5	38	3 P	10	7 A	24.0	80.3	7.5	N	31	10				
6	40	8 P	12	7 A	26.0	88.7	3.4	N	42	6	10 P	12 P	0.06	
7	46	3 P	36	8 A	41.0	93.7	0.0	NW	40	6	2 A	8 P	0.79	
8	36	3 P	31	2 A	33.5	74.7	0.0	N	165	17				
9	38	3 P	30	12 P	34.0	60.0	5.6	NW	291	32			T	T
10	3	3 P	21	8 A	27.0	56.0	7.8	NW	468	32				
11	38	3 P	19	8 A	28.5	60.7	7.5	NW	59	10	P	12 P	0.03	
12	30	0 A	26	8 A	28.0	95.0	0.4	NE	97	9	0 A	11 A	0.49	7.4
13	40	3 P	26	0 A	33.0	82.0	5.4	E	32	11				
14	44	5 P	25	1 A	34.5	67.7	7.5	SW	107	10	—	—	0.01	0.2
15	39	5 P	24	7 A	31.5	100.0	0.0	NW	80	48	9 A	9 P	1.08	T
16	33	5 P	25	8 A	29.0	56.3	8.0	N	358	48				
17	33	2 P	24	3 A	28.5	63.0	7.8	N	250	25	—	—	0.01	0.2
18	33	3 P	20	7 A	26.5	59.7	8.4	N	264	25				
19	48	4 P	22	7 A	35.0	78.7	8.0	N	14	4				
20	52	4 P	24	7 A	38.0	84.0	5.4	NW	45	13				
21	57	3 P	36	12 P	46.5	82.0	0.5	S	307	28	6 A	10 A	0.12	
22	36	2 P	24	12 P	30.0	59.0	7.1	NW	378	25				
23	38	3 P	21	8 A	29.5	67.7	7.1	NW	130	20				
24	54	5 P	29	0 A	41.5	69.0	8.0	NW	97	17				
25	46	3 P	27	12 P	36.5	66.0	8.1	NW	141	14				
26	44	5 P	26	3 A	35.0	96.0	2.4	W	40	17	7 A	9 A	0.03	0.1
27	48	2 P	34	6 A	41.0	75.7	5.6	SW	190	39				
28	37	M	22	12 P	29.5	63.0	7.2	NW	209	32	5 A	6 A	0.01	0.2

* Based on least time required to blow one mile.

HANS JOA, *Observer*

MONTHLY SUMMARY

FEBRUARY 1953		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.479, 20th	30.63	31.05, 1920
Minimum	29.041, 15th	29.24	28.56, 1895
Mean semi-daily	29.976	30.04	
Range	1.438	1.38	1.89, '00, '08; .88, '13, '31
Air Temperature, in degrees F.			
Highest	57, 21st	50.5	65.0, 1930
Lowest	7, 2nd	—7.4	—23, 1943
Mean	31.5	23.7	32.6, 1890; 11.6, 1934
Range	50	58	
Highest mean daily	46.5, 21st		
Lowest mean daily	15.5, 2nd		
Mean maximum	39.8	32.8	
Mean minimum	23.2	14.5	
Greatest daily range	36, 1st		
Least daily range	4, 12th		
Degree-days of heating load for month	937.5	1167	
Degree-days cumulative for season	4300.5	4927	
Precipitation, in inches			
Precipitation	2.97	3.19	8.12, 1900; 0.62, 1901
Snow	11.7	13.99	48.75, 1893; 0.50, 1937
Maximum precip. in 24 hrs.	1.08, 15th		
Number of days with .01 or more	12	10	15, 1893, 1920; 4, 1901
Wind, in miles			
Total movement	4623	4776	6445, 1896; 3402, 1949
Greatest daily movement	468, 10th		
Least daily movement	14, 19th		
Mean hourly velocity	6.88	7.1	
Maximum velocity	48, 15th, 16th	31.7	50, 1946
Wind. direction			
Prevailing direction	NNW	WNW	
North, days	8		
Northeast, days	1		
East, days	1		
Southeast, days	1		
South, days	1		
Southwest, days	2		
West, days	1		
Northwest, days	13		
Weather			
Mean relative humidity, percent	73.9	66.6	
Mean cloudiness, percent	53	50.9	66, 1890, 1927; 31, 1905
Number of clear days	13	10	19, 1941; 2, 1927
Number of fair days	8	8	16,1920; 2, 1936
Number of cloudy days	7	10	16, 1894; 2, 1920
Number of hours bright sunshine	147.9	158	221, 1924; 110, '27, '38
Percent of possible hours of bright sunshine	50.1	53.4	

Note — The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column lists extremes observed from 1889 to 1952.

REMARKS

The mean daily temperature for the month of February was 7.8 degrees (F) above normal. This is the highest February mean daily temperature since 1925. February is the fourth consecutive month having a mean daily temperature above normal.

The degree days accumulative for the 1952-53 heating season are 4300.5 compared to a normal of 4927. The mild winter is reflected in the low number of degree days.

Publication of This Document Approved by George J. Cronin, State Purchasing Agent.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series   Bulletin No 771   March 1953

Meteorological Observations

FOR

MARCH

1953

I. J. PFLUG

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	30	3 P	16	7 A	23.0	62.3	8.6	NW	242	32				
2	32	4 P	10	5 A	21.0	57.7	8.3	N	188	13				
3	38	5 P	14	7 A	26.0	72.7	6.8	N	115	13	9 P	12 P	0.07	
4	53	3 P	32	0 A	42.5	94.0	0.8	S	129	15	0 A	8 A	0.91	T
5	40	0 A	30	12 P	35.0	72.0	6.3	NW	292	48				T
6	40	2 P	27	8 A	33.5	64.3	7.8	W	277	32				
7	31	2 P	19	12 P	25.0	51.3	9.8	W	349	25				T
8	28	3 P	15	7 A	21.5	46.3	8.4	NW	102	13				
9	34	4 P	14	5 A	24.0	58.0	9.3	W	187	25				
10	27	4 P	14	12 P	20.5	44.7	9.4	NW	294	28				
11	37	4 P	8	7 A	22.5	60.0	9.0	NW	95	13				
12	52	2 P	28	0 A	40.0	92.0	2.8	SE	108	8	8 P	12 P	0.19	—
13	51	3 P	42	8 A	46.5	96.3	0.0	SE	93	20	0 A	3 P	1.77	—
14	55	3 P	36	12 P	45.5	72.0	8.8	NW	153	9				
15	43	9 P	32	3 A	37.5	98.3	0.0	NW	13	5	8 A	12 P	1.58	
16	49	1 P	39	6 A	44.0	79.7	4.6	N	139	17	0 A	3 A	0.19	
17	45	3 P	36	9 P	40.5	70.3	2.0	W	135	17				
18	52	3 P	28	6 A	40.0	63.0	8.6	NW	28	9				
19	39	11 A	34	3 P	36.5	83.0	0.0	S	42	10	10P M	12P 3P	0.20	
20	46	1 P	33	2 A	39.5	81.7	8.6	SW	40	16	2 P	3 P	0.04	T
21	51	4 P	32	6 A	41.5	65.7	9.6	W	69	6				
22	58	3 P	32	5 A	45.0	70.7	8.2	S	118	10				
23	67	3 P	32	6 A	49.5	73.0	9.2	S	138	17				
24	60	11 A	51	12 P	55.5	88.7	0.5	SE	216	20	11 A	9 P	1.19	
25	57	2 P	41	7 A	49.0	84.0	6.4	NW	101	10	4 P	11 P	0.37	
26	57	1 P	49	6 A	53.0	81.3	4.6	SE	142	14	6 P	12 P	0.32	
27	51	3 P	44	12 P	47.5	87.0	0.8	E	149	17	0 A	8 P	0.21	
28	50	2 P	40	12 P	45.0	82.7	3.6	SE	94	10				
29	46	1 P	34	5 A	40.0	92.7	3.2	S	94	32	1 P	12 P	0.32	
30	47	3 P	40	8 A	43.5	86.0	4.8	NW	437	25	0 A	8 A	0.91	
31	56	4 P	43	3 A	49.5	77.0	7.8	NW	250	17	7 A	8 A	0.01	

* Based on least time required to blow one mile.

Hans Joa, *Observer*

MONTHLY SUMMARY

MARCH 1953		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.690, 11th	30.57	31.05, 1943
Minimum	29.365, 30th	29.24	28.47, 1914
Mean semi-daily	30.021	30.04	
Range	1.325	1.34	2.10, 1914; 0.85, 1915
Air Temperature, in degrees F.			
Highest	67, 23rd	63.8	85, 1945
Lowest	8, 11th	6.1	14, 1948
Mean	38.2	34.4	
Range	59	57.6	
Highest mean daily	55.5, 24th		
Lowest mean daily	20.5, 10th	43.2	
Mean maximum	45.9	25.4	
Mean minimum	30.5		
Greatest daily range	35.0, 23rd		
Least daily range	5.0, 19th		
Degree-days of heating load for month	831.5	949	
Degree-days cumulative for season	5132	5876	
Precipitation, in inches			
Precipitation	8.28	3.70	7.89, 1942; 0.12, 1915
Snow	T	7.47	27, 1899; 0, 1921
Maximum precip. in 24 hrs.	1.77, 13th		
Number of days with .01 or more	15	11	17, 1890, 1913, 1936; 3, 1915
Wind, in miles			
Total movement	4829	5944	8182, 1896; 3006, 1905
Greatest daily movement	437, 30th		
Least daily movement	13, 15th		
Mean hourly velocity	6.5	7.7	
Maximum velocity	48, 5th	31.2	48, 1932, 1939, 1941, 1942
Wind, direction			
Prevailing direction	NW	WNW	
North, days	3		
Northeast, days	—		
East, days	1		
Southeast, days	5		
South, days	5		
Southwest, days	1		
West, days	5		
Northwest, days	11		
Weather			
Mean relative humidity, percent	74.7	64.2	
Mean cloudiness, percent	55.5	51.8	68, 1901; 27, 1915
Number of clear days	14	11	22, 1924; 3, 1901
Number of fair days	8	10	17, 1900; 1, 1943
Number of cloudy days	9	10	21, 1901; 1, 1915
Number of hours bright sunshine	178.6	199	292, 1924; 93, 1910
Percent of possible hours of bright sunshine	48.3	53.6	

Note—The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column lists extremes observed from 1889 to 1952.

REMARKS

The mean daily temperature during March was 3.8°F. above normal. This is the fifth consecutive month that the mean temperature has been above normal. The cumulative degree days for the heating season through March is 5132 degree days compared to the normal of 5876.

The rainfall during March was 8.28 inches; this is 4.58 inches above normal and is the most rainfall recorded in March since the start of our records in 1889. The rainfall occurred on 15 days; the maximum in 24 hours was 1.77 inches. The rainfall during March was the most for any month since the September 1938 hurricane. Dr. Ives of Amherst College points out that water accumulation since January 1 is about 70 percent above normal.

Dr. Frank Southwick of the Pomology Department makes the following remarks:

"Mild temperatures were experienced during January, February, and March. Fruit plants appear to have come through the winter with virtually no signs of winter injury. In McIntosh apple blocks where the crop was light in 1952, it can now be seen that a very heavy bloom is going to occur. Peaches apparently will bloom heavily, also. At the end of March, apple flower buds had commenced to swell but were still in suitable condition for a dormant spray application. The almost continuous rain period during the latter part of March made spraying and crop planting difficult or impossible, however."

Publication of This Document Approved by George J. Cronin, State Purchasing Agent.

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 772 April 1953

Meteorological Observations

FOR

APRIL

1953

I. J. PFLUG

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	60	1 P	40	6 A	50.0	74.0	7.2	NW	42	5	9 P	11 P	0.03	
2	60	1 P	41	12 P	50.5	79.7	0.8	NW	61	20	2 A	6 P	0.25	
3	63	4 P	33	5 A	48.0	68.7	10.2	NW	48	5				
4	65	2 P	33	6 A	49.0	60.7	9.4	SE	89	14	11 P	12 P	0.03	
5	62	1 P	42	12 P	52.0	63.3	8.8	NW	91	17	0 A	2 A	0.02	
6	57	4 P	32	6 A	44.5	60.0	9.0	NW	60	9	1 A	11 P	0.85	
7	47	3 P	42	12 P	44.5	87.0	0.0	SE	69	7				
8	59	5 P	41	12 P	50.0	73.3	8.7	N	128	10				
9	64	2 P	37	4 A	50.5	66.7	9.6	S	46	8				
10	52	10 A	44	9 P	48.0	90.0	0.0	SE	149	11	11 A	12 P	0.37	
11	61	5 P	44	1 A	52.5	71.3	8.7	W	154	18				
12	52	11 A	41	4 A	46.5	78.3	3.2	SW	91	6	2 P	12 P	0.71	
13	47	3 P	32	9 P	39.5	94.3	0.3	NW	162	18	4 P	12 P	1.05	T
14	39	6 P	32	0 A	35.5	64.3	6.6	W	395	32	0 A	8 A	0.36	1.4
15	59	5 P	35	6 A	47.0	45.0	10.9	W	302	32				
16	47	5 P	33	6 A	40.0	89.3	0.0	W	82	22	9 A	6 P	0.61	
17	59	1 P	38	3 A	48.5	61.0	9.0	W	235	32			T	
18	44	0 P	35	4 A	39.5	72.3	1.6	SW	75	9	5 P	12 P	0.15	
19	41	11 A	33	12 P	37.0	85.7	0.0	NW	123	11	M	12 P	0.29	
20	44	3 P	33	0 A	38.5	69.3	6.5	W	185	25	0 A	3 A	0.07	0.4
21	47	1 P	36	3 A	41.5	64.0	6.3	W	233	28				
22	65	2 P	34	5 A	49.5	51.3	9.8	S	182	25			T	
23	69	1 P	49	4 A	59.0	44.7	10.3	W	341	39				
24	69	4 P	46	5 A	57.5	46.0	10.9	W	187	20				
25	63	3 P	48	3 A	55.5	68.7	5.9	S	65	10	6 A	8 A	0.02	
26	56	1 P	50	12 P	53.0	88.0	0.8	SE	36	28	0 A	12 P	0.55	
27	63	1 P	46	12 P	54.5	73.0	7.5	W	138	20				
28	51	1 P	40	9 P	45.5	62.3	7.2	W	291	32				
29	61	5 P	38	4 A	49.5	53.0	10.3	W	226	28				
30	67	3 P	35	6 A	51.0	50.0	10.3	W	68	11				

* Based on least time required to blow one mile.

HANS JOA, *Observer*

MONTHLY SUMMARY

APRIL, 1953		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.102, 30th	30.48	30.71, 1911
Minimum	29.328, 13th	29.38	28.98, 1943
Mean semi-daily	29.786	29.99	
Range	0.774	1.11	1.52, 1930; 0.65, 1950
Air Temperature, in degrees F.			
Highest	69, 23rd, 24th	79.4	90, 1941
Lowest	32, 6th, 13th, 14th	22.0	8.5, 1923
Mean	47.6	45.7	52.1, 1941; 41, 1943
Range	37	57.4	
Highest mean daily	59.0, 23rd		
Lowest mean daily	35.5, 14th	56.8	
Mean maximum	56.4	34.8	
Mean minimum	38.7		
Greatest daily range	32.0, 4th, 29th		
Least daily range	2.0, 26th		
Degree-days of heating load for month	520	579	
Degree-days cumulative for season	5652	6455	
Precipitation, in inches			
Precipitation	5.36	3.35	6.89, 1929; .55, 1941
Snow	1.8	2.17	11, 1891; 0, 1910, 1934
Maximum precip. in 24 hrs.	1.05		
Number of days with .01 or more	15	11	18, 1909; 3, 1892
Wind, in miles			
Total movement	4354	5404	8208, 1908; 3853, 1917
Greatest daily movement	395, 14th		
Least daily movement	36, 26th		
Mean hourly velocity	6.0	7.5	
Maximum velocity	39, 23rd	31.4	40, 1935, 1938, 1940, 1945
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	1		
Northeast, days	—		
East, days	—		
Southeast, days	4		
South, days	3		
Southwest, days	2		
West, days	13		
Northwest, days	7		
Weather			
Mean relative humidity, percent	68.5	61.6	
Mean cloudiness, percent	65.6	51.8	75, 1901; 34, 1925, 1927
Number of clear days	12	11	23, 1941; 1, 1949
Number of fair days	9	9	18, 1915; 2, 1894, 1901
Number of cloudy days	9	10	22, 1901; 1, 1941
Number of hours bright sunshine	189.8	220	329, 1941; 103, 1901
Percent of possible hours of bright sunshine	47.4	54.7	
Thunder and lightning	10th, 26th		
Last snow	April 20th	Apr. 15	Mar. 14, 1910; May 11, 1907,'45

Note — The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column lists extremes observed from 1889 to 1952.

REMARKS

The mean daily temperature during April was 1.9 degrees above normal. The precipitation was 5.36 inches, 2.01 inches above normal; the precipitation since January 1 was 22.85 inches.

Dr. Frank Southwick of the Pomology Department made the following observations:

"Although April averaged 1.9 degrees above normal, bud development of fruit plants at the end of the month was about average. Apparently the maximum daily temperatures were sufficiently low to impede growth even though the average mean temperatures were above normal. McIntosh apples reached delayed dormant about April 10. They remained dormant about two weeks and were not in a full pink stage at the end of the month.

"About April 25, plums, cherries, and peaches commenced to bloom, but are not expected to reach full bloom until early May. Since the blossom period will probably occur about the usual time, the chances of loss of fruit from spring frosts do not appear to be great. Excessive rainfall in April has made scab control a difficult problem for apple growers and has delayed the planting of annual crops."

Publication of This Document Approved by George J. Cronin, State Purchasing Agent.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 773 May 1953

Meteorological Observations

FOR

MAY

1953

I. J. PFLUG

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	47	2 P	38	12 P	42.5	82.0	0.6	N	109	13	1 A 3 P	8 A 9 P	1.33	
2	44	2 P	38	6 A	41.0	81.7	0.0	N	75	10	0 A	12 P	0.24	
3	54	3 P	37	4 A	45.5	78.0	8.4	E	70	4	0 A	1 A	0.02	
4	73	5 P	33	5 A	53.0	63.0	11.6	NW	44	5				
5	64	5 P	51	7 A	57.5	89.7	6.2	S	72	4	5 A	10 A	0.28	
6	79	3 P	47	5 A	63.0	68.0	10.0	S	79	12				
7	69	1 P	58	4 A	63.5	89.7	0.2	S	70	4	4 P	9 P	0.19	
8	72	3 P	58	6 A	65.0	88.3	5.6	SE	80	13	4 A 6 P	6 A 10 P	0.59	
9	79	2 P	54	5 A	66.5	78.3	8.4	W	59	5	2 P	3 P	0.01	
10	87	4 P	50	5 A	68.5	65.7	11.0	SW	37	4				
11	90	4 P	51	5 A	70.5	56.3	9.0	S	24	5				
12	88	4 P	56	5 A	72.0	62.0	10.5	SE	49	4				
13	79	3 P	61	5 A	70.0	73.3	7.7	SE	106	10	7 P	10 P	0.18	
14	72	2 P	57	12 P	64.5	82.7	4.8	SE	65	9				
15	57	5 P	54	5 A	55.5	93.3	0.0	SE	73	8	9 A	4 P	0.44	
16	74	6 P	55	0 A	64.5	73.3	11.8	N	57	10				
17	60	3 P	53	12 P	56.5	93.0	0.0	SE	73	8	1 A	8 A	0.73	
18	79	4 P	52	3 A	65.5	78.7	6.5	SE	95	25	1 A	5 A	0.28	
19	77	2 P	55	5 A	66.0	64.7	10.1	W	58	7				
20	80	2 P	51	5 A	65.5	68.3	10.5	SW	39	7				
21	76	3 P	52	5 A	64.0	65.3	11.4	E	85	15				
22	75	6 P	51	1 A	63.0	85.0	4.3	E	106	10	11 P	12 P	0.37	
23	69	2 P	52	12 P	60.5	61.7	11.2	W	241	25	0 A	2 A	0.66	
24	73	4 P	43	4 A	58.0	55.3	11.8	W	188	22				
25	74	2 P	46	4 A	60.0	63.0	11.8	NW	100	20				
26	70	11 A	46	5 A	58.0	65.0	6.0	NW	54	15	2 P	9 P	0.83	
27	69	M	46	3 A	57.5	72.7	7.7	NW	94	20	3 P	12 P	0.54	
28	59	M	47	3 A	53.0	68.7	10.2	NW	245	25	0 A	2 A	0.07	
29	66	3 P	41	5 A	53.5	54.0	11.3	NW	128	15				
30	59	M	43	2 A	51.0	74.7	6.9	NW	41	5				
31	70	4 P	40	5 A	55.0	63.3	10.2	NW	42	8				

* Based on least time required to blow one mile.

HANS JOA, *Observer*

MONTHLY SUMMARY

MAY, 1953	Normal	Extremes
Barometer, in inches (Readings reduced to sea level)		
Maximum 30.293, 4th	30.39	30.62, 1936
Minimum 29.513, 18th	29.51	29.10, 1938
Mean semi-daily 29.911	29.96	
Range 0.780	0.88	
Air Temperature, in degrees F.		
Highest 90, 11th	86.1	94.5, 1896, 1911
Lowest........................33, 4th	31.2	24.0, 1900
Mean 59.7	57.1	
Range 57	54.9	
Highest mean daily 72.0, 12th		
Lowest mean daily 41.0, 2nd	56.8	
Mean maximum 70.5	34.8	
Mean minimum 48.9		
Greatest daily range..............40, 4th		
Least daily range 3, 15th		
Degree-days of heating load for month189.5		
Degree-days cumulative for season.. 5841.5		
Precipitation, in inches		
Precipitation 6.76	3.60	7.44, 1931; .48, 1903
Snow .... —		
Maximum precip. in 24 hrs...........1.33		
Number of days with .01 or more.......16	12	20, 1901, 1945; 5, 1903
Wind, in miles		
Total movement...................2658	4504	5946, 1907; 2180, 1894
Greatest daily movement........245, 28th		
Least daily movement 24, 11th		
Mean hourly velocity 3.6	6.1	
Maximum velocity 25, 18th, 23rd, 28th	28.8	45, 1935
Wind, direction		
Prevailing direction............... WNW	W	
North, days 3		
Northeast, days ....—		
East, days 3		
Southeast, days 7		
South, days 4		
Southwest, days 2		
West, days 4		
Northwest, days.......................8		
Weather		
Mean relative humidity, percent......72.9	60.7	
Mean cloudiness, percent 62.6	52.1	72, 1948; 30, 1923
Number of clear days 12	11	21, 1944; 0, 1927
Number of fair days 13	11	18, 1949; 5, 1923
Number of cloudy days 6	9	20, 1927; 2, 1941
Number of hours bright sunshine....235.7	252	350, 1944; 137, 1927
Percent of possible hours of bright sunshine 52.1	55.6	
Thunder and lightning 7th, 8th, 12th, 23rd, 26th, and 27th		

Note — The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column lists extremes observed from 1889 to 1952.

REMARKS

The mean daily temperature for the month of May was 2.6 degrees above normal. The rainfall for the month was 6.76 inches compared to the normal of 3.60 inches.

Dr. Frank Southwick of the Pomology Department makes the following remarks:

"May was another very wet month with total rainfall about double the average amount. Temperatures for the month were near the seasonal average so that fruit plants generally blossomed at about the expected time. Peaches were in full bloom about May, and apples were in the pink stage of development on the same date. All apple varieties blossomed from May 9 to 13. Weather conditions during the apple blossoming period were excellent for pollination and fertilization. A good set of all fruits is anticipated. No killing frosts were experienced in the fruit-producing areas of the State during May."

PUBLICATION OF THIS DOCUMENT APPROVED BY GEORGE J. CRONIN, STATE PURCHASING AGENT.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 774 June 1953

Meteorological Observations

FOR

JUNE

1953

I. J. PFLUG

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	75	3 P	43	5 A	59.0	50.7	11.6	NW						
2	74	4 P	45	5 A	59.5	43.3	12.0	NW	174	25				
3	72	5 P	41	5 A	56.5	45.7	12.5	NW	142	22				
4	78	3 P	48	3 A	63.0	67.3	6.4	NW	27	4			T	
5	89	3 P	59	6 A	74.0	66.0	10.4	NE	72	17				
6	92	3 P	69	5 A	80.5	60.0	11.1	SW	156	17	10 P	11 P	0.01	
7	80	5 P	57	12 P	68.5	71.7	5.6	SW	92	15	11 A	1 P	0.06	
8	79	5 P	50	5 A	64.5	58.3	11.6	W	69	10				
9	90	5 P	60	4 A	75.0	68.0	8.8	SE	215	36				
10	76	4 P	54	12 P	65.0	46.3	12.2	NW	281	25				
11	74	4 P	47	4 A	60.5	38.7	12.2	NW	192	25				
12	77	3 P	43	5 A	60.0	57.0	10.7	NW	59	13				
13	70	11 A	49	6 A	59.5	61.7	7.5	SE	57	9	3 P	7 P	0.04	
14	71	4 P	49	12 P	60.0	63.0	10.6	NE	106	10				
15	83	4 P	43	5 A	63.0	60.0	9.0	NE	53	12				
16	87	1 P	51	5 A	69.0	55.0	11.3	NW	38	4				
17	85	4 P	53	5 A	69.0	60.7	8.9	S	67	8				
18	82	5 P	59	5 A	70.5	62.0	10.9	SE	70	5				
19	90	4 P	58	5 A	74.0	66.7	10.6	SE	47	5				
20	98	4 P	63	4 A	80.5	66.7	10.8	W	54	10				
21	97	1 P	71	5 A	84.0	78.0	5.8	W	42	32	11 P 1 P	12 P 4 P	0.68	
22	88	2 P	66	12 P	77.0	82.7	8.7	NE	69	10	3 A	7 A	0.55	
23	81	4 P	59	12 P	70.0	53.7	11.6	W	170	22				
24	79	5 P	55	3 A	67.0	48.7	11.9	W	161	18				
25	84	2 P	49	4 A	66.5	56.7	11.1	SE	71	15				
26	95	3 P	63	5 A	79.0	71.0	9.1	SE	148	15	4 P	5 P	0.22	
27	87	6 P	65	12 P	76.0	60.7	11.4	NW	94	12	2 A	4 A	0.07	
28	88	3 P	56	4 A	72.0	63.3	11.7	SE	93	13	8 P	12 P	0.58	
29	88	4 P	65	12 P	76.5	69.7	11.4	SE	67	12	0 A	4 A	0.20	
30	88	3 P	57	5 A	72.5	63.3	12.0	W	53	11				

* Based on least time required to blow one mile.

HANS JOA, *Observer*

MONTHLY SUMMARY

JUNE, 1953		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.191, 28th	30.30	30.70, 1947
Minimum	29.654, 9th	29.55	29.24, 1902
Mean semi-daily	29.957	29.95	
Range	0.537	0.75	
Air Temperature, in degrees F.			
Highest	98, 20th	91.2	101, 1919
Lowest	41, 3rd	40.0	34, 1891
Mean	69.1	65.7	71.9, 1949; 49.5, 1917
Range	57	51.3	
Highest mean daily	84.0, 21st		
Lowest mean daily	56.5, 3rd		
Mean maximum	83.2		
Mean minimum	54.9		
Greatest daily range	40, 15th		
Least daily range	21, 13th		
Degree-days of heating load for month	44.5		
Degree-days cumulative for season	5886.0		
Precipitation, in inches			
Precipitation	2.41	3.75	9.68, 1922; 0.72, 1949
Snow	—		
Maximum precip. in 24 hrs.	0.68		
Number of days with .01 or more	9	11	17, 1922, 1945; 4, 1908
Wind, in miles			
Total movement	2939	3585	4571, 1908; 1409, 1906
Greatest daily movement	281, 10th		
Least daily movement	27, 4th		
Mean hourly velocity	4.1	5.0	
Maximum velocity	36, 9th	24.6	48, 1939
Wind, direction			
Prevailing direction	WNW	WSW	
North, days	—		
Northeast, days	4		
East, days	—		
Southeast, days	8		
South, days	1		
Southwest, days	2		
West, days	6		
Northwest, days	9		
Weather			
Mean relative humidity, percent	60.6	66.9	
Mean cloudiness, percent	47.7	51.1	71, 1903; 28, 1908
Number of clear days	19	10	22, 1908, 1941, 1943; 0, 1949
Number of fair days	11	12	23, 1912; 3, 1941
Number of cloudy days	—	8	22, 1903; 1, 1923
Number of hours bright sunshine	309.5	257	365, 1947, 102, 1903
Percent of possible hours of bright sunshine	67.7	54.0	
Thunder and lightning	6th, 20th, 21st, 22nd, 26th, 27th, 29th		

Note — The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column lists extremes observed from 1889 to 1952.

REMARKS

The mean daily temperature for the month of June was 69.1 degrees. This is 3.4 degrees above normal. The precipitation for the month was 2.41 inches compared to the normal of 3.75 inches. During the period May 28 to June 21 there was only 0.11 inch of rainfall, thereby creating mild drought conditions.

Dr. Frank Southwick of the Pomology Department makes the following remarks:

"The month of June was below normal in rainfall but above average in sunlight and average mean temperature. Dry weather noticeably influenced the size and yield of unirrigated strawberries. It does not appear that dry weather has influenced growth of tree fruits yet. Now that the June drop is over, it is apparent that most apple varieties which bloomed, with the possible exception of Delicious, have set enough fruit for a full crop. The above normal amount of sunlight is expected to favor flower bud formation for the 1954 apple crop and help return many alternating McIntosh blocks to an annual bearing condition. As one might expect, following the excessively wet months of March, April, and May, apple scab is a serious problem in many orchards. Peaches have set very heavily, and an above average crop of this fruit is anticipated."

Publication of This Document Approved by George J. Cronin, State Purchasing Agent

MASSACHUSETTS

AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No 775 July 1953

Meteorological Observations

FOR

JULY

1953

I. J. PFLUG

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	86	4 P	66	5 A	76.0	67.7	9.8	W	71	10			T	
2	89	4 P	70	4 A	79.5	78.0	10.1	NW	93	20	3 A	4 A	0.01	
3	82	2 P	60	11 P	71.0	51.3	11.5	NW	239	32				
4	82	4 P	51	5 A	66.5	54.3	12.0	W	59	7				
5	86	4 P	51	4 A	68.5	58.7	11.7	SW	58	8				
6	82	2 P	61	4 A	71.5	70.7	8.7	SE	145	13			T	
7	85	2 P	62	12 P	73.5	54.0	11.7	W	150	17	6 A	7 A	0.01	
8	84	1 P	54	5 A	69.0	71.0	8.0	SW	62	22	2 P	12 P	0.84	
9	74	M	59	5 A	66.5	60.0	10.8	W	158	22				
10	78	2 P	49	5 A	63.5	61.0	11.1	W	92	14				
11	81	3 P	50	5 A	65.5	63.7	11.2	W	33	12				
12	82	3 P	55	5 A	68.5	67.3	10.2	W	43	7				
13	72	6 P	58	11 A	65.0	81.3	6.3	NW	141	18	6 A	M	0.45	
14	76	3 P	54	4 A	65.0	79.3	7.9	NW	50	5				
15	88	4 P	58	4 A	75.0	79.3	8.4	NW	44	8				
16	92	2 P	61	5 A	76.5	68.0	10.5	NW	75	17				
17	96	4 P	62	5 A	79.0	65.7	11.5	W	46	13				
18	97	3 P	67	4 A	82.0	60.0	11.3	NW	47	10				
19	90	4 P	65	5 A	77.5	67.3	9.9	W	56	10				
20	89	4 P	70	6 A	79.5	82.3	7.4	SE	63	7	4 P	5 P	0.03	
21	89	1 P	69	5 A	79.0	75.0	8.1	SE	49	10	2 P	6 P	0.07	
22	80	2 P	68	5 A	74.0	75.7	9.2	NE	97	10				
23	70	1 P	65	12 P	67.5	87.0	0.0	NE	47	9	10 A	5 P	0.52	
24	78	1 P	56	12 P	67.0	62.3	11.0	NW	165	18				
25	76	5 P	47	5 A	61.5	60.0	11.6	NW	60	7				
26	84	2 P	54	4 A	69.0	64.3	10.8	S	109	9				
27	88	4 P	65	4 A	76.5	76.7	6.9	SE	96	12				
28	86	3 P	59	5 A	72.5	64.0	10.8	SW	72	17				
29	77	6 P	55	4 A	66.0	75.7	3.4	NW	35	8	2 P	3 P	0.02	
30	91	3 P	70	4 A	80.5	57.3	10.7	W	105	11				
31	84	3 P	59	5 P	71.5	49.3	10.9	NW	187	25				

* Based on least time required to blow one mile.

HANS JOA *Observer*

MONTHLY SUMMARY

JULY, 1953		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.307, 25th	30.27	30.50, 1892
Minimum	29,511, 2nd	29.59	29.27, 1932
Mean semi-daily	29.981	29.96	
Range	0.796	0.68	0.97, 1892; 0.47, 1938
Air Temperature, in degrees F.			
Highest	97, 18th	93.9	104, 1911
Lowest	47, 25th	46.4	40, 1890, 1898
Mean	71.7	70.8	66.3, 1891; 76.0, 1949
Range	50.0	47.7	
Highest mean daily	82.0, 18th		
Lowest mean daily	61.5, 25th		
Mean maximum	83.7		
Mean minimum	59.7		
Greatest daily range	35, 5th		
Least daily range	5, 23rd		
Degree-days of heating load for month			
Degree-days cumulative for season			
Precipitation, in inches			
Precipitation	1.95	4.10	14.51, 1897; 0.70, 1929
Snow	—		
Maximum precip. in 24 hrs.	0.84		
Number of days with .01 or more	8	11	20, 1915; 4, 1924
Wind, in miles			
Total movement	2747	3422	5097, 1909; 1109, 1894
Greatest daily movement	239, 3rd		
Least daily movement	33, 11th		
Mean hourly velocity	3.7	4.6	
Maximum velocity	32, 3rd	28.7	44, 1936
Wind, direction			
Prevailing direction	WNW	SW	
North, days	—		
Northeast, days	2		
East, days	—		
Southeast, days	4		
South, days	1		
Southwest, days	3		
West, days	10		
Northwest, days	11		
Weather			
Mean relative humidity, percent	67.4	68.4	
Mean cloudiness, percent	44.0	50.9	70, 1943; 31, 1924
Number of clear days	16	10	22, 1923; 0, 1915
Number of fair days	13	14	24, 1909, 1921; 4, 1946
Number of cloudy days	2	7	18, 1889; 0, 1910
Number of hours bright sunshine	293.4	268	371, 1910; 180, 1931
Percent of possible hours of bright sunshine	63.3	58	
Thunder and lightning	8th, 9th, 20th, 21st		

Note—The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column lists extremes observed from 1889 to 1952.

REMARKS

The small amount of rainfall, 1.95 inches, compared to the normal of 4.10 inches. was the outstanding feature of the July weather. The mean daily temperature and the mean relative humidity were both very near normal.

The temperature was in the "90's" for four consecutive days, July 16, 17, 18, and 19. According to Professor Kightlinger of the Department of Agronomy this hot spell caused considerable damage to tobacco.

PUBLICATION OF THIS DOCUMENT APPROVED BY GEORGE J. CRONIN, STATE PURCHASING AGENT

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 776 August 1953

Meteorological Observations

FOR

AUGUST

1953

I. J. PFLUG

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	79	3 P	48	5 A	63.5	47.3	11.2	W	107	17				
2	71	4 P	54	12 P	62.5	75.7	4.4	W	28	4	7 A	9 A	0.03	
3	78	5 P	49	2 A	63.5	56.3	7.7	NW	69	9				
4	77	M	52	4 A	64.5	66.0	11.7	SE	104	13			T	
5	78	10 A	57	12 P	67.5	75.3	5.0	SE	188	20				
6	80	4 P	52	6 A	66.0	60.3	11.1	N	74	10				
7	81	3 P	52	6 A	66.5	64.7	10.0	E	63	11				
8	84	4 P	52	3 A	68.0	62.7	108.	E	43	7				
9	77	2 P	66	4 A	71.5	83.3	3.4	SE	58	14	10 P	12 P	0.83	
10	84	4 P	67	6 A	75.5	85.0	7.9	E	106	12	0 A	5 P	1.01	
11	79	3 P	62	12 P	70.5	79.0	9.9	W	103	17			T	
12	84	5 P	55	4 A	69.5	77.7	9.4	NW	33	4				
13	87	3 P	65	3 A	76.0	76.3	8.2	S	95	11				
14	79	1 P	70	6 A	74.5	79.0	7.2	S	52	6				
15	84	3 P	65	12 P	74.5	59.7	10.6	W	170	25				
16	80	2 P	55	5 A	67.5	58.7	11.0	W	106	13				
17	77	5 P	57	6 A	67.0	72.7	8.6	W	73	—				
18	76	3 P	47	6 A	61.5	67.0	10.5	W	60	11				
19	77	3 P	45	5 A	61.0	63.3	9.8	W	79	15				
20	76	4 P	49	6 A	62.5	59.0	10.8	NW	50	11				
21	77	3 P	50	6 A	63.5	64.7	8.6	NW	37	7				
22	80	3 P	50	7 A	65.0	68.3	9.8	NE	20	6				
23	84	3 P	54	3 A	69.0	69.0	8.2	N	45	5				
24	87	2 P	55	4 A	71.0	71.7	9.5	N	55	11			T	
25	88	4 P	58	5 A	73.0	73.0	9.0	NW	58	10				
26	86	2 P	67	6 A	76.5	69.7	7.2	SE	70	11			T	
27	90	3 P	60	6 A	75.0	70.0	9.7	W	15	6				
28	94	3 P	66	4 A	80.0	66.7	8.6	S	82	12				
29	96	3 P	62	6 A	79.0	61.0	10.0	NW	68	12				
30	96	2 P	61	6 A	78.5	60.7	8.7	NW	31	10				
31	95	3 P	65	4 A	80.0	52.3	9.8	S	133	18				

* Based on least time required to blow one mile.

HANS JOA, *Observer*

MONTHLY SUMMARY

AUGUST, 1953		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.300, 12th	30.32	30.50, 1934
Minimum	29.558, 5th	29.61	28.87, 1930
Mean semi-daily	30.078	30.00	
Range	0.742	0.71	
Air Temperature, in degrees F.			
Highest	96, 29th, 30th	91.6	100, 1918, 1948
Lowest	45, 19th	43.4	34, 1940
Mean	69.8	68.6	62.4, 1903; 73.5, 1939
Range	51.0	48.1	
Highest mean daily	80.0, 28th, 31st		
Lowest mean daily	61.0, 19th		
Mean maximum	82.6		
Mean minimum	57.0		
Greatest daily range	35.0, 30th		
Least daily range	9.0, 14th		
Precipitation, in inches			
Precipitation	1.87	4.08	8.40, 1948; 0.31, 1894
Snow	—		
Maximum precip. in 24 hrs.	1.01, 10th		
Number of days with .01 or more	3	11	16, 1892, 1933; 4, 1899
Wind, in miles			
Total movement	2275	3127	4,217, 1910; 1,920, 1894
Greatest daily movement	188, 5th		
Least daily movement	15, 27th		
Mean hourly velocity	3.1	4.2	
Maximum velocity	25. 15th	22.7	40, 1941
Wind, direction			
Prevailing direction	WNW	SW	
North, days	3		
Northeast, days	1		
East, days	3		
Southeast, days	4		
South, days	4		
Southwest, days	—		
West, days	9		
Northwest, days	7		
Weather			
Mean relative humidity, percent	67.3	70.2	
Mean cloudiness, percent	40.5	49.7	67, 1901, 1946; 27, 1923
Number of clear days	16	9	23, 1941; 0, 1915, 1929
Number of fair days	14	13	25. 1912; 3, 1939
Number of cloudy days	1	9	18, 1901, 1928; 2, 1910, 1923
Number of hours bright sunshine	278.3	237	332, 1941; 152, 1915, 1929
Percent of possible hours of bright sunshine	64.6	55.2	
Thunder and lightning	—		

Note — The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column lists extremes observed from 1889 to 1952.

REMARKS

The weather for the month of August was unusual. The early part of the month was cool with the last week in the month reaching record highs. The mean daily temperature for the month was 1.2 degrees above normal. Although the record high temperature for August was not broken, record high temperatures were recorded for August 29, 30 and 31.

The rainfall for the month was 1.87 inches compared to the normal of 4.08 inches.

Dr. Ives of South Amherst reported that August was the tenth consecutive month with above normal temperatures. He also observed that this was the fifth driest summer (least rain) since 1929.

Publication of This Document Approved by George J. Cronin, State Purchasing Agent

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 777 September 1953

Meteorological Observations

FOR

SEPTEMBER

1953

I. J. PFLUG

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	95	3 P	57	6 A	76.0	53.7	10.1	NW	36	7				
2	99	3 P	68	5 A	83.5	57.0	9.4	S	109	20				
3	96	2 P	68	6 A	82.0	62.3	9.3	NW	42	10				
4	92	3 P	67	3 A	79.5	76.3	6.7	SE	85	13			T	
5	90	1 P	73	5 P	81.5	73.3	7.9	SE	213	20				
6	78	3 P	65	12 P	71.5	75.3	5.3	NW	115	11			T	
7	80	M	56	12 P	68.0	78.3	5.0	NW	157	18				
8	76	2 P	50	5 A	63.0	56.0	9.3	W	129	20				
9	73	2 P	40	5 A	56.5	61.7	9.7	W	94	13				
10	76	3 P	38	6 A	57.0	64.0	10.0	W	47	9				
11	81	3 P	43	6 A	62.0	64.0	9.7	W	49	8				
12	74	M	49	6 A	61.5	78.7	4.9	SE	118	13	10 P	12 P	0.08	
13	73	1 P	53	12 P	63.0	68.3	8.1	SW	193	20	0 A	3 A	1.42	
14	65	3 P	50	5 A	57.5	55.7	10.0	W	216	22				
15	66	4 P	44	6 A	55.0	71.0	4.8	SW	23	2				
16	77	3 P	47	5 A	62.0	75.0	7.6	S	66	13	8 P	10 P	0.12	
17	70	4 P	47	6 A	58.5	70.0	9.4	NW	103	15				
18	70	4 P	44	4 A	57.0	66.0	9.6	NW	83	10				
19	71	3 P	44	7 A	57.5	75.3	8.7	SE	128	13				
20	76	11 A	59	0 A	67.5	70.7	4.3	SE	141	13				
21	77	4 P	56	12 P	66.5	77.7	6.3	SE	113	20	3 A 9 P	7 A 12 P	0.26	
22	66	2 P	43	12 P	54.5	68.0	7.9	W	132	18				
23	61	3 P	34	6 A	47.5	67.0	9.4	W	61	14				
24	68	4 P	30	6 A	49.0	69.0	8.8	NW	69	10				
25	70	1 P	41	6 A	55.5	74.7	7.3	SE	94	11				
26	78	3 P	57	0 A	67.5	72.3	7.9	SE	138	10				
27	78	M	60	3 A	69.0	81.0	6.8	SE	80					
28	73	3 P	50	12 P	61.5	63.0	9.0	NW	85	13				
29	75	2 P	43	5 A	59.0	68.3	8.9	NW	63					
30	69	4 P	44	5 A	56.5	80.7	7.5	SE	118	22				

* Based on least time required to blow one mile.

HANS JOA, *Observer*

MONTHLY SUMMARY

SEPTEMBER 1953		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.567, 24th	30.45	30.65, 1924
Minimum	29.623, 13th	29.57	28.41, 1938
Mean semi-daily	30.006	30.00	
Range	0.944	.88	1.99, 1938; 57, 1910
Air Temperature, in degrees F.			
Highest	99, 2nd	87.7	97,1895, 1929
Lowest	30, 24th	33.2	24.5, 1914
Mean	63.5	61.7	
Range	49	54.5	
Highest mean daily	83.5, 2nd		
Lowest mean daily	47.5, 23rd		
Mean maximum	76.4		
Mean minimum	50.6		
Greatest daily range	38, 1, 10, 11, 24		
Least daily range	13, 6th		
Degree-days of heating load for month	141		
Degree-days cumulative for season	141		
Precipitation, in inches			
Precipitation	1.42	4.24	14.55, 1938; 0.52, 1914
Snow	—		
Maximum precip. in 24 hrs.	1.42		
Number of days with .01 or more	4	10	16, 1933; 3, 1903
Wind, in miles			
Total movement	3100	3271	4,680, 1896; 1414, 1894
Greatest daily movement	216, 14th		
Least daily movement	23, 15th		
Mean hourly velocity	4.3	4.5	
Maximum velocity	22, 30th	25.9	80, 1938
Wind, direction			
Prevailing direction	WNW	WSW	
North, days	—		
Northeast, days	—		
East, days	—		
Southeast, days	10		
South, days	2		
Southwest, days	2		
West, days	7		
Northwest, days	9		
Weather			
Mean relative humidity, percent	69.3	73.6	
Mean cloudiness, percent	38.2	49.9	70,1934; 23, 1947
Number of clear days	15	10	19, 1932; 2, 1907, 1928
Number of fair days	15	10	19, 1908; 3, 1889
Number of cloudy days	—	10	20, 1934; 3, 1941, 1948
Number of hours bright sunshine	239.6	201	255, 1916; 106, 1934
Percent of possible hours of bright sunshine	63.8	54.9	
Thunder and lightning	—		
First Frost	24th	Sept. 21	Oct. 13, 1909; Aug. 22, 1894-95

Note—The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column lists extremes observed from 1889 to 1952.

REMARKS

The outstanding feature of the September weather was the low rainfall. The precipitation was 1.88 inches compared to the normal of 4.24 inches.

A new record temperature for the month was established September 2 when the mercury reached 99 degrees.

Publication of This Document Approved by George J Cronin, State Purchasing Agent.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 778 October 1953

Meteorological Observations

FOR

OCTOBER

1953

I. J. PFLUG

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	75	2 P	48	12 P	61.5	56.3	9.0	NW	102					
2	76	4 P	38	5 A	57.0	66.7	8.9	NW	55					
3	81	3 P	40	6 A	60.5	64.7	8.7	NW	50					
4	80	1 P	48	2 A	64.0	67.3	8.4	S	137					
5	63	0 A	48	12 P	55.5	85.0	0.0	N	95		8 A	11 P	0.46	
6	52	M	44	12 P	48.0	89.0	0.0	NW	92	11	2 P	12 P	0.77	
7	52	2 P	38	12 P	45.0	73.0	6.1	NW	205	28	0 A	3 A	0.16	
8	57	1 P	33	6 A	45.0	62.0	9.0	NW	121	15				
9	66	2 P	27	6 A	46.5	63.7	8.4	NW	45	7				
10	68	3 P	33	6 A	50.5	75.9	5.9	S	37	7				
11	63	3 P	39	4 A	51.0	75.3	4.2	NW	62	8				
12	61	3 P	42	12 P	51.5	77.7	4.9	NW	122	20			T	
13	61	4 P	29	5 A	45.0	68.3	8.7	NW	32	4				
14	67	4 P	25	6 A	46.0	62.7	8.4	NW	44	8			T	
15	74	4 P	32	7 A	53.0	72.0	7.5	S	49	8				
16	74	4 P	39	7 A	56.5	66.3	8.0	S	30	8				
17	76	3 P	33	7 A	54.5	67.7	8.1	N	25	10				
18	74	2 P	36	6 A	55.0	64.3	7.9	NW	29	12				
19	77	3 P	49	1 A	63.0	69.7	6.0	S	73	10				
20	77	1 P	51	6 A	64.0	70.0	6.2	S	62	9				
21	58	2 P	46	12 P	52.0	77.7	0.0	NE	76	9				
22	62	2 P	40	6 A	51.0	59.7	7.1	NE	117	11				
23	63	1 P	49	7 A	56.0	58.3	3.8	NE	129	10	2 P	5 P	0.14	
24	73	2 P	42	6 A	57.5	60.0	7.2	N	62	13				
25	57	2 A	46	8 P	51.5	87.7	0.0	NW	92	14	10 A	4 P	1.02	
26	62	3 P	40	12 P	51.0	80.0	5.9	N	35	4				
27	57	12 P	34	5 A	45.5	93.0	0.6	N	12	5	3 P	12 P	0.15	
28	67	3 P	54	1 A	60.5	91.0	1.2	N	33	5	1 A	11 A	0.71	
29	60	10 A	52	9 P	56.0	95.0	0.2	N	80	10	3 A	12 P	1.26	
30	62	2 A	48	12 P	55.0	77.3	4.7	NW	209	29	0 A	4 A	0.48	
31	67	2 P	39	8 A	53.0	73.3	7.5	NW	52	7				

* Based on least time required to blow one mile

HANS JOA, *Observer*

MONTHLY SUMMARY

OCTOBER 1953		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.462	30.53	30.68, 1929
Minimum	29.522	29.42	29.00, 1926
Mean semi-daily	30.061	30.06	
Range	0.940	1.11	1.47, 1926; 0.76, 1899
Air Temperature, in degrees F.			
Highest	81, 3rd	79.4	90.5, 1908
Lowest	25, 14th	23.4	17, 1936
Mean	53.6	50.5	57.6, 1949; 43.2, 1890
Range	56	56.0	
Highest mean daily	64, 4th, 20th		
Lowest mean daily	45, 7th, 8th, 13th		
Mean maximum	66.5		
Mean minimum	40.7		
Greatest daily range	42, 14th, 15th		
Least daily range	8, 6th, 29th		
Degree-days of heating load for month	353		
Degree-days cumulative for season	494		
Precipitation, in inches			
Precipitation	5.15	3.29	8.81, 1911; 0.01, 1924
Snow	—		
Maximum precip. in 24 hrs	1.26		
Number of days with .01 or more	9	9	15, 1913; 1, 1897, 1924
Wind, in miles			
Total movement	2364	4074	5467, 1910; 2540, 1894
Greatest daily movement	209, 30th		
Least daily movement	12, 27th		
Mean hourly velocity	3.2	5.4	
Maximum velocity	29, 30th	29.5	42, 1937
Wind, direction			
Prevailing direction	NNW	W	
North, days	7		
Northeast, days	3		
East, days	—		
Southeast, days	—		
South, days	6		
Southwest, days	—		
West, days	—		
Northwest, days	15		
Weather			
Mean relative humidity, percent	72.6	69.0	
Mean cloudiness, percent	44.0	48	67, 1932; 18, 1924
Number of clear days	14	10	21, 1938; 1, 1911
Number of fair days	10	10	17, 1924; 3, 1938
Number of cloudy days	7	11	19, 1896; 3, 1924
Number of hours bright sunshine	172.5	175.0	232, 1923, 1938; 91, 1913
Percent of possible hours of bright sunshine	50.3	51.3	
Thunder and lightning	—		
First Frost			

Note — The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column lists extremes observed from 1889 to 1952.

REMARKS

The outstanding feature of the October weather was the rainfall of 5.15 inches compared to the normal of 3.29 inches. This was the first month since May that the rainfall was above normal. Rainfall for the first 10 months of 1953 was 42.41 inches compared to the normal of 36.91 inches.

The mean daily temperature for October was 3.1 degrees above normal.

Publication of This Document Approved by George J Cronin, State Purchasing Agent.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No. 779 November 1953

Meteorological Observations

FOR

NOVEMBER

1953

I. J. PFLUG

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum		Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
	Degrees	Time	Degrees	Time										
1	64	3 P	35	6 A	49.5	79.0	6.9	NW	31	10				
2	65	2 P	39	6 A	52.0	74.0	6.5	NW	71	20				
3	72	2 P	42	6 A	57.0	66.3	5.1	S	97	25				
4	51	M	34	12 P	42.5	54.7	6.7	W	268	32				
5	41	1 P	26	12 P	33.5	60.0	6.9	NW	147	20				
6	35	9 P	23	6 A	29.0	57.7	0.0	N	210	48	2 P	6 P	0.16	
7	49	2 P	30	1 A	39.5	75.3	0.6	NE	353	25	6 A	1 P	0.10	1
8	49	2 P	30	6 A	39.5	66.0	6.8	S	113	14				
9	54	2 P	36	12 P	45.0	65.0	3.3	W	101	13				
10	53	2 P	32	5 A	42.5	74.0	6.3	S	9	3				
11	52	2 P	29	7 A	40.5	77.7	5.8	S	17	6				
12	52	3 P	31	12 P	41.5	84.3	3.8	E	11	5				
13	49	2 P	26	6 A	37.5	81.7	6.1	NE	28	7				
14	40	2 P	25	4 A	32.5	87.7	0.0	NE	9	3				
15	57	3 P	33	1 A	45.0	85.0	2.6	E	29	5				
16	57	3 P	31	3 A	44.0	75.0	6.0	NE	34	10				
17	63	3 P	34	3 A	48.5	82.7	3.8	N	12	—				
18	67	3 P	31	7 A	49.0	74.7	5.9	N	2	—				
19	63	3 P	31	8 A	47.0	81.0	5.5	N	2	—				
20	70	3 P	34	7 A	52.0	74.0	5.8	N	11	5.5				
21	57	10 P	30	8 A	43.5	83.7	3.6	NE	12	4				
22	64	12 P	51	6 A	57.5	88.7	0.0	NE	17	13	11 P	12 P	0.04	
23	66	2 A	44	12 P	55.0	92.3	0.0	SE	162	25	0 A	M	1.08	
24	55	2 P	36	8 A	45.5	83.0	5.1	W	17	9				
25	56	M	44	12 P	50.0	95.3	0.0	E	53	13	5 A	6 P	0.91	
26	48	2 P	30	12 P	39.0	76.7	6.0	SW	108	17				
27	45	2 P	24	8 A	34.5	80.7	6.0	SW	14	2.5				
28	41	2 P	35	8 A	38.0	86.7	0.9	SW	32	7				
29	43	2 P	27	12 P	35.0	68.0	6.1	NW	106	20				
30	36	2 P	25	7 A	30.5	84.0	1.9	NW	16	8	8 P	12 P	0.07	T

* Based on least time required to blow one mile.

HANS JOA, *Observer*

MONTHLY SUMMARY

NOVEMBER 1953		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.625, 6th	30.59	30.87, 1932
Minimum	29.354, 25th	29.30	28.73, 1904
Mean semi-daily	30.114	30.05	
Range	1.271	1.29	1.84, 1904; 0.89, 1943
Air Temperature, in degrees F.			
Highest	72, 3rd	66.0	82, 1950
Lowest	23, 6th	12.9	4, 1938
Mean	43.2	38.9	46.3, 1931; 33.6, 1901
Range	49	53.0	
Highest mean daily	57.5, 22nd		
Lowest mean daily	30.5, 30th		
Mean maximum	53.8		
Mean minimum	32.6		
Greatest daily range	36, 18th, 20th		
Least daily range	6, 28th		
Degree-days of heating load for month	654	783	
Degree-days cumulative for season	1148		
Precipitation, in inches			
Precipitation	2.36	3.41	8.64, 1927; 0.63, 1917
Snow	1	2.34	13.50, 1938
Maximum precip. in 24 hrs.	1.08		
Number of days with .01 or more	6	9	22, 1921; 2, 1904
Wind, in miles			
Total movement	2092	4531	5,978, 1906; 2,589, 1889
Greatest daily movement	353		
Least daily movement	2, 18th, 19th		
Mean hourly velocity	2.9	6.3	
Maximum velocity	48, 6th	30.3	48, 1948, 1950
Wind, direction			
Prevailing direction	NNE	WNW	
North, days	5		
Northeast, days	6		
East, days	3		
Southeast, days	1		
South, days	4		
Southwest, days	3		
West, days	3		
Northwest, days	5		
Weather			
Mean relative humidity, percent	77.2	70.6	
Mean cloudiness, percent	44.5	55.1	78, 1947; 34, 1917
Number of clear days	8	6	15, 1903; 0, 1948
Number of fair days	13	9	16, 1912; 4, 1889, 1930, '32, '35
Number of cloudy days	9	15	24, 1927; 9, 1905, 1917, 1949
Number of hours bright sunshine	124.0	121	182, 1903; 44, 1948
Percent of possible hours of bright sunshine	42.2	41.3	
Thunder and lightning	—		
First Snow	7th	Nov. 6	Oct. 10, 1925; Nov. 27, 1931

Note — The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column lists extremes observed from 1889 to 1952.

REMARKS

The mean daily temperature for November was 43.2 degrees compared to the normal of 38.9 degrees Fahrenheit. The rainfall for November was 2.36 inches compared to the normal of 3.41 inches.

The first snowfall of the season occurred on November 7.

Publication of This Document Approved by George J. Cronin, State Purchasing Agent

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AGRICULTURAL EXPERIMENT STATION

Meteorological Series Bulletin No 780 December 1953

Meteorological Observations

FOR

DECEMBER

1953

I. J. PFLUG

OBSERVATORY

Latitude, 42° 23′ 31″ N.	Longitude, 72° 31′ 48″ W.
Height of barometer above ground, 36 ft.	Above sea level, 253.5 ft.
Height of wind instruments, 67 ft.	Time used, E. S. T.

Requests for bulletins should be addressed to the
AGRICULTURAL EXPERIMENT STATION
AMHERST, MASS.

DAILY RECORDS

Day	Temperature					Mean Relative Humidity	Number of Hours Bright Sunshine	Wind			Precipitation			
	Maximum		Minimum											
	Degrees	Time	Degrees	Time	Mean			Prevailing Direction	Total Movement	Max. Miles per Hour*	Began	Ended	Water	Snow
1	37	2 P	31	0 A	34.0	91.7	0.1	N	120	12.5	0 A	11 A	0.09	1
2	44	1 P	25	12 P	34.5	66.3	5.9	NW	198	12				0
3	44	3 P	21	4 A	32.5	77.0	3.6	NW	14	4				
4	56	9 P	25	4 A	40.5	85.3	0.0	NW	34	18			T	
5	56	1 A	34	12 P	45.0	76.7	5.2	W	216	28	0 A	4 A	0.71	
6	45	12 P	31	7 A	38.0	92.0	0.0	W	24	2	7 P	12 P	0.55	
7	59	1 A	35	12 P	47.0	70.0	4.2	W	226	32	0 A	4 A	0.61	
8	59	2 P	34	7 A	46.5	66.7	5.5	S	139	12.5				
9	54	12 P	30	6 A	42.0	87.7	0.0	SE	50	11	7 P	12 P	0.20	
10	58	10 A	38	12 P	48.0	74.0	0.6	W	277	32	0 A	8 A	0.69	
11	48	3 P	31	8 A	39.5	68.0	5.7	W	190	22				
12	48	2 P	38	2 A	43.0	77.7	0.0	SE	135	8	7 P	11 P	0.18	
13	49	2 P	34	9 P	41.5	78.7	5.5	W	35	9				
14	46	11 P	32	0 A	39.0	100.0	0.0	N	84	22	4 A	7 P	1.08	T
15	45	0 A	30	12 P	37.5	61.0	4.2	W	177	39	5 A	7 A	0.06	0
16	34	M	20	12 A	27.0	63.0	5.4	W	166	15				
17	22	M	11	12 P	16.5	67.0	5.4	W	133	18				
18	28	2 P	8	6 A	18.0	76.0	4.9	W	87	22				
19	29	8 P	9	7 A	19.0	71.7	2.0	S	105	8				
20	45	2 P	26	0 A	35.5	68.7	2.8	S	108	12				
21	57	2 P	35	2 A	46.0	64.3	5.1	SE	103	11				
22	52	2 P	37	6 A	44.5	86.0	3.3	SE	68	13	2 A	5 A	0.26	
23	48	0 A	19	12 P	33.5	57.3	1.7	W	295	22				
24	28	3 P	15	5 A	21.5	60.0	4.3	NW	112	14				
25	44	1 P	21	2 A	32.5	54.3	3.6	SE	138	10.5				
26	42	M	24	6 A	33.0	73.0	4.2	NW	104	12.5				
27	36	2 P	22	12 P	29.0	62.7	6.0	W	201	22	2 A	3 A	0.06	
28	39	M	22	0 A	30.5	84.3	0.0	W	75	12.5	1 P	4 P	0.04	
29	37	2 P	26	12 P	31.5	98.3	0.0	SE	49	5				
30	38	3 P	24	3 A	31.0	98.3	0.5	SE	10	4				
31	30	2 P	20	12 P	25.0	62.7	4.9	W	161	28				

* Based on least time required to blow one mile.

HANS JOA, *Observer*

MONTHLY SUMMARY

DECEMBER 1953		Normal	Extremes
Barometer in inches (Readings reduced to sea level)			
Maximum	30.301, 24th	30.66	31.104, 1949
Minimum	29.221, 14th	29.27	28.85, 1915
Mean semi-daily	29.973	30.06	
Range	1.080	1.38	1.78, 1895; 1.01, 1892
Air Temperature, in degrees F.			
Highest	59, 7th, 8th	54.3	65.5, 1908
Lowest	8, 18th	—1.9	—22.5, 1917
Mean	34.9	27.5	36.9, 1891; 17.1, 1917
Range	51	56.2	
Highest mean daily	48, 10th		
Lowest mean daily	16.5, 17th		
Mean maximum	43.8		
Mean minimum	26.0		
Greatest daily range	32,5th		
Least daily range	6, 1st		
Degree-days of heating load for month	932.5	1162.5	
Degree-days cumulative for season	2080.5	2494.0	
Precipitation, in inches			
Precipitation	4.53	3.39	7.77, 1901; .58, 1943
Snow	1.00	8.50	26.50, 1092; T, 1891, 1943
Maximum precip. in 24 hrs	1.08		
Number of days with .01 or more	12	10	17, 1902; 4, 1892, 1943
Wind, in miles			
Total movement	3825	4710	6694, 1925; 3239, 1918
Greatest daily movement	295, 23rd		
Least daily movement	10. 30th		
Mean hourly velocity	5.1	6.3	
Maximum velocity	39, 15th	31.4	66, 1949
Wind, direction			
Prevailing direction	WNW	WNW	
North, days	2		
Northeast, days	—		
East, days	—		
Southeast, days	7		
South, days	3		
Southwest, days	—		
West, days	14		
Northwest, days	5		
Weather			
Mean relative humidity, percent	74.8	69.4	
Mean cloudiness, percent	56.9	54.9	71, 1929; 39, 1919
Number of clear days	3	8	15, 1890; 0, 1948
Number of fair days	16	9	16. '09; 4, '89, '30, '31, '36, '38
Number of cloudy days	12	14	25, 1948; 7, '09, '23
Number of hours bright sunshine	94.6	128	172, 1896, 27, 1948
Percent of possible hours of bright sunshine	33.5	45.2	
Thunder and lightning	—		
First Snow	...	Nov. 6	

Note — The first column in the above summary lists observations made during the month. The second column lists the averages based on observations made from 1889 to 1938, except that humidity records are based on observations made from 1929 to 1938. The third column lists extremes observed from 1889 to 1952.

ANNUAL SUMMARY

ANNUAL		Normal	Extremes
Barometer, in inches (Readings reduced to sea level)			
Maximum	30.690, March 11th	30.81	31.10, 1949
Minimum	29.039 Jan. 25th	28.95	28.41, 1938
Mean semi-daily	29.988	30.01	
Range	1.651	1.85	2.47, 1938; 1.38, 1933
Air Temperature, in degrees F.			
Highest	99, Sept. 2nd	95.7	104, 1911
Lowest	7, Feb. 2nd	—12.2	—26, 1904
Mean	51.1	47.4	51.7, 1949; 44, 1904
Range	92	107.8	
Highest mean daily	84.0. June 21st		
Lowest mean daily	15.5. Feb. 2nd		
Mean maximum	61.7	57.8	
Mean minimum	40.5	36.5	
Greatest daily range	42, Oct. 14th, 15th		
Least daily range	3, May 15th		
Degree-days 1952-53 heating season	5886	6698	
Precipitation, in inches			
Precipitation	49.76	43.70	59.00, 1938; 30.68, 1908
Snow	27.3	47.78	89.00, 1893; 24.50, 1919
Maximum precip. in 24 hrs.	1.77 March 13th		
Number of days with .01 or more	122	124	146, 1945; 96, 1924
Wind, in miles			
Total movement	39,297	52,223	63,571, 1908; 36,257, 1894
Greatest daily movement	468, Feb. 10		705, 1909
Least daily movement	2, Nov. 18th, 19th		
Mean hourly velocity	4.4	5.8	
Maximum velocity	48. Feb. 15th, 16th	39.5	80, 1938
Wind, direction			
Prevailing direction	WNW	W	
North, days	39		
Northeast, days	17		
East, days	11		
Southeast days	52		
South, days	39		
Southwest, days	17		
West, days	73		
Northwest, days	117		
Weather			
Mean relative humidity, percent	71.7	69.9	77.9, '51; 64.9, '32
Mean cloudiness, percent	51.0	51.7	60, '98, '01, '02; 41, '08, '24
Number of clear days	152	116	217, 1941; 59, 1927
Number of fair days	136	123	182, 1912; 64, 1936
Number of cloudy days	77	126	179, '01, '02; 71, 1910, 1941
Number of hours bright sunshine	2373.1	2,353	3038, 1941; 1864, 1902
Percent of possible hours of bright sunshine	51.7	52.8	
Last snow	April 20th	April 15	Mar. 14 '10; May 11, '07, '45
First snow	Nov. 7th	Nov. 6	Oct. 10, '25; Dec. 13. '41
Last frost	April 14th	May 14	Apr. 14, '43, June 8, '32
First frost	Sept. 24th	Sept. 21	Aug. 22. '94, '95; Oct. 13, '09